Vol. XXXVIII. DECEMBER, 1897.

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THEORY AND PRACTICE OF SPECIAL ASSESSMENTS.

BY J. L. VAN ORNUM, ASSOC. M. AM. SOC. C. E.
PRESENTED SEPTEMBER 15TH, 1897.

WITH DISCUSSION.

CLASSIFICATION AND HISTORY.

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Omitting gifts and income from quasi-private business undertakings, both of which are of little moment in this nation, revenue is derived from compulsory contribution under the process of eminent domain, penalties, fees and taxes. Under the power of eminent domain private property is taken for public uses, but its value is paid

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Omitting gifts and income from quasi-private business undertakings, both of which are of little moment in this nation, revenue is derived from compulsory contribution under the process of eminent domain, penalties, fees and taxes. Under the power of eminent domain private property is taken for public uses, but its value is paid

to the owner, resulting in only an incidental revenue, if it exists at all. Penalties and fines are imposed under the penal power primarily for punishment, but revenue results. Fees arise under the police power and consist of an enforced payment to cover, in whole or in part, the expense of each act or special service rendered. A tax is an enforced contribution by all the interests affected, levied by the authority of the state for the maintenance of the institutions and interests of the government and without reference to the particular benefits conferred. Taxes may be either general or special, as the object is for the general interest or for the advantage of a certain portion or district. It is sometimes difficult to distinguish between fees and taxes, but the underlying purpose in each case will generally decide. The police power is exercised primarily for the purpose of regulation, the idea of revenue being incidental; while taxation has revenue as its object, with special advantages (when they occur) as incidental. Adam Smith distinguished the former as particular contributions, and the latter as general contributions. The one is apportioned according to the privileges or benefits received, the other to the ability to pay.

Under which head shall special assessments be classed? Local assessments in some characteristics invade the domain of both the police power and the taxing power, and in the early days of its growth it was the practice to assess such charges under the one power or the other as circumstances seemed to make the more advantageous. Especially have special assessments and special taxes appeared sometimes to merge, as here the distinction between a local and a general application is lost.

The distinctively American principle of special assessments has been a growth occasioned by public necessities and common justice, sanctioned by statutes, interpreted by judicial decrees, and firmly established in the economics of the republic. By reference to the Appendix, where the law of special assessments is treated at length, and to the following paragraphs, it will be seen that the correct principle and almost universal practice is to include them under the general taxing power, and yet consider them to differ from taxes in general to an extent that holds them not in violation of constitutional requirements providing that taxation shall be equal and uniform. Local assessments belong to the taxing power because they are primarily for raising revenue, and they must be for public purposes, capable of

apportionment, collectible by compulsory process, and not arbitrary in effect. They differ from taxes, special and general, in the fact that a real benefit to the contributor is conferred, which is the measure of liability to be taxed, and this is not true of taxes. They are distinct from fees in that they are restricted to a particular object, district and time, and their purpose is revenue, and not regulation or special privilege. It would be hardly necessary to distinguish special assessments from expropriation under the power of eminent domain, except that there sometimes arises a confusion of two distinct processes. In the prosecution of a public project, the land that is required is secured directly by expropriation; but the exercise of the power of eminent domain stops here, and the improvement is effected and its cost apportioned under the wholly distinct process of local assessment.

A special assessment may, then, be defined as "a compulsory contribution paid once and for all to defray the cost of a specific improvement to property, undertaken in the public interest, and levied by the government in proportion to the special benefits accruing to the property owner."*

The history of special assessments covers more than two centuries. Of continental Europe only Belgium and Germany have applied the principle to any considerable extent, the former having made use of the system during the greater part of this century, and the latter having employed it for a score of years, principally in the construction of streets. However, there is this distinction in principle between the continental and the American systems; while in this country it is levied under the taxing power, in Europe it is considered an exercise of the police power, which there includes not only the regulation of the acts and conduct of the people in the interest of the general safety, health, morals, order and justice, as in the United States, but is extended in scope to include also the power to secure general advantages and public improvements. Great Britain has enacted such laws on three different occasions, but none are now in force. The most marked of these laws was that passed in 1667 to regulate the rebuilding of London after the great fire of the year preceding, thus making it the first law ever enacted which conformed closely in principle to our present laws. It is also interesting as forming the model upon which the first American law was framed.

* E. R. A. Seligman, *Quarterly Journal of Economics*, April, 1893.

In America, the Colony of New York first enacted a true special assessment law for New York City, the date being 1691. A literal copy of the pertinent portions of this act follows:*

"An Act for Regulating the Buildings Streets Lanes Wharfs Docks and Alleyes of the Citty of New Yorke."

"FORASMUCH as the Citty of New-Yorke, the Metropolis of this Province was Cheifly Erected by the Inhabitants thereof for the propogating and Encouragement of Trade and Commerce and for the good, benefite and welfare of their Majesties Subjects inhabiting within this Province AND FORASMUCH as it is very necessary for Traffick and Commerce that buildings, streets, lanes, wharffs, docks and alleyes of the said Citty be conveniently regulated with uniformity, for the accommodation of habitations shipping Trade and Commerce. And that all impediments and Obstructions that may retard so necessary a Work may be removed BEE IT THEREFORE ENACTED by the Commander in Cheif and Council and Representatives mett in Generall Assembly and by the authority of the same That the Mayor Aldermen and Common Council of the said Citty shall and may at their will and pleasure

* * * * * * *

"AND FORASMUCH as the filth and soile of the said Citty lying in the publick streets thereof doth often prove A Common nuisance unto the Inhabitants and Traders to and from the said Citty and very prejudiciall to their health for the removall thereof Bee it further Enacted by the authority aforesaid that the Numbers and places for all comon Shoars Drains and vaults and the order and manner of paving and pitching the streets lanes and alleyes of the said Citty shall be designed and sett out by the Mayor Aldermen and Comon Councill of the said Citty, together with the said surveyors and Supervisors appointed in manner aforesaid and when they Assemble shall have power and authority to order and direct the making of Vaults drains and Sewers or to cut into any drains or Sewers already made and for the altering inlarging amending cleansing and scouring of any vaults Sincks or comon Sewers and for the better Effecting whereof it shall and may be lawfull to and for the said Mayor Aldermen and Comon Council together with the said Surveyors and supervisors at their said meeting, to impose any reasonable Tax upon all houses within the said Citty in proportion to the benefite they shall receive thereby for and towards the making cutting altering inlarging amending cleansing and scouring all and singular the said Vaults drains Sewers pavements and pitching aforesaid, and in default of payment of the said sume to be Charged it shall and may be lawfull to and for the said Mayor and Aldermen &c so authorized as aforesaid by order or warrant under their Hands and seals to levy the said sume and sumes of money soe

* From "The Colonial Laws of New York" (compiled by the statutory revision commission, 1894), Vol. I, pp. 269–271.

assessed by distresse and sale of the goods of the partyes chargeable therewith and refuising and neglecting to pay the same rendring the Overplus if any be, ALWAYES PROVIDED * * * * *."

This law, just quoted, involved the essential characteristics of special assessments, as it plainly applied to street pavements and to sewers the principle of assessing the cost of public improvement. by a special procedure, upon the property interested in proportion to the benefits received, forcing the payment, if necessary, in the manner customary with general taxes.

The next similar law enacted in this country was a province law of Pennsylvania of the year 1700. This provided that "to defray the charge of pitching, paving, gravelling and regulation of said streets * * * each inhabitant was to pay in proportion to the number of feet of his lots * * * adjoining, on each or either side of the said streets."*

The only remaining province which promulgated similar laws before the formation of the republic was Massachusetts. During the reigns of Queen Anne and George III, "persons receiving any benefit from common sewers, either direct or remote, were obliged to pay such proportional part of making or repairing the same as should be assessed to them by the selectmen of the towns."† These acts are dated 1709 and 1761.

At the close of the Revolution, laws of a similar nature were re-enacted, generally with more definite provisions, by the three commonwealths. By a statute passed in 1781, in that part of Charlestown, Mass., laid waste by fire by the British troops, the improvement of streets was paid for by assessment on property benefited; other similar laws followed. The old New York law seems to have remained in force, though little used, until 1787, when it was amended and made more definite.‡ Pennsylvania at this period inclined to move backward from the theory, as the cost of improvement was made payable by taxation and not on the principle of assessment according to benefits. Again, about the time of the war of 1812 there are clustered some further provisions of a similar nature. Several suburbs of Philadelphia applied the principle at this time,§ and in New York the cities of New York, Albany, Schenectady and Hudson were authorized to

* Cited in 65 Pa. St., 158.

† Cited by Chief Justice Bigelow in 94 Mass., 239 (All. 12.)

‡ Chapter 88 of the 10th Session, Laws of New York, p. 544.

§ 65 Pa. St., 160, etc.

make use of the system in 1813, Troy in 1816, Utica in 1817, and other towns seem to have had the same power given them at this time, though in less definite language.*

Following the example of the enactments mentioned, and encouraged and stimulated by their application in the instances given, the principle of special assessments began to be adopted quite extensively and thoroughly, resulting in a steady growth and an increasing application throughout the present century. The following dates may be taken as indicating about the time when the system became adopted in the policies of the different states and territories;† these dates usually mark a real application of the principle in the charter of some city, followed generally by court decisions in the main upholding the method, and by a substantial and continuous development of the system in other portions of the commonwealth in question.

The principle may, then, be considered as dating, in New York from 1813; Kentucky, from 1813; Michigan, 1827; Pennsylvania, 1832; Louisiana, 1832; New Jersey, 1836; Ohio, 1836; Illinois, 1837; Maryland, 1838; Connecticut, 1843; Wisconsin, 1846; Indiana, 1846; Mississippi, 1846; California, 1850; Oregon, 1851; Missouri, 1853; Rhode Island, 1854; Iowa, 1855; Delaware, 1857; Kansas, 1864; Massachusetts, 1865; District of Columbia, 1865; Virginia, 1866; Vermont, 1868; West Virginia, 1868; Minnesota, 1869; New Hampshire, 1870; Texas, 1871; Maine, 1872; Nebraska, 1873; Florida, 1877; Georgia, 1881; Nevada, 1881; Washington, 1883; Alabama, 1885; North Carolina, 1887; North Dakota, 1887; South Dakota, 1887; Montana, 1887; Idaho, 1887; Wyoming, 1887; Utah, 1888; Colorado, 1889; Oklahoma T., 1890; New Mexico T., 1891; Arizona T., 1893; and South Carolina seems now prepared to return to the favorable attitude she held in the first half of this century (though this policy was afterward reversed), as the new state constitution (1895), recognizes the "power of cities and towns to levy taxes and assessments * * * and no tax or assessment shall be levied or debt contracted except in pursuance of law, for public purposes specified by law." As yet the general assembly of South Carolina has passed no act declaring the exact scope of this provision.

* See Laws of New York, 1813-1818.

† The greater part of these dates are taken from the extensive monograph of Victor Rosewater, in Vol. ii of the Columbia College "Studies in History, Economics and Public Law" (1893), to which the author is also indebted for others of the references in this historical résumé.

There remain only two, from among the states and territories of the republic, whose settled policy continues adverse, Arkansas accepting the principle only partially, and Tennessee not at all.

Arkansas considers special assessments as under the taxing power, but the state constitution of 1874 provides that such assessments must be preceded by "the consent of a majority in value of the property-holders owning property adjoining the locality to be affected; but such assessments shall be *ad valorem* and uniform." As this substitutes for the principle of assessment according to benefit the method of according to value, it departs to this extent from the true principle of special assessments, and conforms more to the idea of a special tax. Following this theory statutes were enacted in 1881 under which improvements have been made and their cost assessed within "improvement districts" according to the principle given.

In Tennessee the Supreme Court in 1872 declared special assessments absolutely void because in violation of the provisions of the state constitution of 1870, which provides that all state, county and municipal taxes shall be equal, uniform, and according to value. These were held to specify the sole rule by which any tax can be imposed, and the "spirit of the constitution imperatively demands that it be observed in all cases."* There is an exception made in favor of assessments that clearly and unmistakably can be levied under the police power, especially for sidewalks, but so completely has this decision affected the policy of the state, that the only provision for municipal improvements in later laws (especially those of 1883) allows the raising of the necessary funds only by general taxation, for such works as paving, sewers, water-works, etc.

Present Practice in Fifty Cities.

During the early part of the present year information was furnished by officials of the following cities, giving their actual methods of making special assessments. To the city engineers and other officials through whose courtesy this data has been secured, acknowledgment is here given of the value which such facts furnish to an extended discussion of this subject. It was the endeavor to select these municipalities so as to make the methods, as illustrated by them, representative of American practice; and therefore they were chosen to secure

* Freeman, J., in 9 Heisk, 349.

as complete a geographical distribution as possible, besides including smaller cities as well as the larger and more important ones. While special assessments usually are levied for the construction of sidewalks and curbing (but sometimes under the distinct authority of the police power), and while the cost of bridges, street lighting, the maintenance and repair of public improvements, and other such expenses, are sometimes so assessed (although the customary way is to charge them to the city), yet it has been deemed sufficient for this investigation that it should cover only the more usual and important subjects of assessment, that is, pavements (including foundations and grading for the paving), sewers, and water-works; the question of assessing the expense of street sprinkling, now growing in importance, is also covered, as well as that of limiting the total amount that can be levied to a certain percentage of the tax valuation of the property. The following list is arranged according to the geographical location of the cities replying.

Portland, Me.—This city lays the total cost of all street improvements upon the city. Its water-works were constructed and are still owned by a private company, thus escaping the question of direct special assess ment. Its sewer system is constructed by placing the expense of the main sewers upon the city, together with one-third the cost of the laterals, while two-thirds of the cost of the latter is assessed on lots benefited, in proportion to area. Street sprinkling is done by private arrangement, the rate being about 10 cents per front foot.

Manchester, N. H.—In this city the total cost of all public improvements is paid by the city, the only partial returns for the same being the water rates charged those using the city water, and a charge for sewer entries of 30 cents per front foot on all streets except one, where the charge is 50 cents per front foot. The street sprinkling, even, is done at the expense of the city.

Lowell, Mass.—This city requires a street to be graded satisfactorily to the council at private expense before it will be accepted by the city as a public thoroughfare; all subsequent improvements are paid for by the city. The established water rates are the only individual charge for water-works. For lateral sewers the abutting property pays one-half the cost, or less, the city bearing the remainder. Where a main sewer is laid in a street the abutters are assessed on the basis of what would be the amount on a lateral sewer instead. The cost of street sprink-

ling, which is done by the city, is assessed upon the frontage, amounting to about 4, 5 and 6 cents per linear foot on streets 40, 50 and 60 ft. in width.

Springfield, Mass.—All street improvements are effected by general taxation. The water-works were similarly constructed, the water rates apparently being devoted to maintenance. The sewers were also built at the city's expense, but there are certain charges for connection which, in the case of stores and manufactories, amount to $1 50 per front foot. One-half of the cost of sprinkling is paid by the city and one-half by abutting property according to frontage.

Worcester, Mass.—The city assesses the cost of grading on property generally by the frontage rule, but at times by area. Paving and repaving is charged to the city. Its water-works system was also built by the city at its own expense. The property benefited bears three-fourths the cost of lateral sewers, and the city the balance. Where a main sewer occurs, the property pays what would be charged if it were a lateral, and the city the remainder. For sprinkling the streets the city gives the water and assesses the cost of distribution. Assessments are not limited to a certain percentage of the tax valuation of the property.

Providence, R. I.—This city accepts streets only when they are brought to grade by the previous owners. All street improvements are made at the expense of the city. Concerning the water-works, rates are charged the consumers sufficient not only for maintenance and the necessary extension, but also to provide for the sinking funds for the cost of construction. Examples of the rates charged are: For one faucet, $6; bath-tub, $5; water-closet, $5; and set basin, $2 per year. For the sewer system, property benefited pays 60 cents per linear foot frontage, and 1 cent per square foot of area, the city paying the remainder. It is estimated that this method charges the property with 50 to 60% of the cost of the entire system. Street sprinkling is entirely by private arrangement.

Hartford, Conn.—Streets are graded at the expense of the city. Subsequent improvements are charged, two-thirds upon abutting property according to its linear frontage, and one-third upon the city. Repairs are made under five-year guaranty by the contractor; otherwise by the city. Water-works were also built at the public expense, rates to consumers now covering the ordinary expenses. Intercepting sewers

have been built at the city's expense, but of the general sewer system itself the total cost of any main with its laterals is "assessed pro rata upon the property benefited, by the front foot," corner lots paying only for one front. Sprinkling is done by private contract. There is no limit fixed by requiring special assessments not to exceed a certain ratio of the tax valuation of the lots affected.

New Haven, Conn.—Here the grading is done by the city. For street improvements the property abutting pays for 1 sq. yd. for each running foot of front, if there has been no previous assessment for similar work; but if it is a renewal, the cost of $3\frac{1}{2}$ sq. ft. is similarly assessed. The water-works are owned by a private corporation. For the sewers the general rule has been followed of assessing at the rate of $1 45 per front foot. This rule, formulated when the system was devised in 1872, was so fixed under the expectation that, when the system shall be entirely completed, it will result in placing one-third the cost on the city and two-thirds on the adjoining property. Street sprinkling is assessed against the lots affected by linear frontage.

Albany, N. Y.—This city places the cost of grading for street improvements entirely upon contiguous property, but by an elastic rule which permits the Board of Contract and Apportionment to vary the distribution between the "frontage" rule and the "area" rule, as seems most just in any case. Unlike most New England cities, the abutting property pays for paving in proportion to its frontage usually, yet here also there is some elasticity allowed, permitting other methods if deemed more fair. The city pays no proportion except for city property abutting. Street intersections are assessed on the street and on lateral streets for half the depth of the blocks. Allowances are made for corner lots. For repaving the same method is followed as for the original work if half the frontage affected petitions for some different kind of pavement; otherwise, the city bears the expense. The charter compels the paving contractor to repair for from five to fifteen years. Concerning the water-works system the only private charge, except the water rents (amounting to 8 cents per 1 000 galls. where meters are used), is an assessment to pay partially for the extension of the distributing system to localities which previously had no supply, thus charging such property to an extent which will at least partially compensate for its previously escaping all water rents; in this category have occurred some distributing mains which the water commissioners attempted to pay

for with city bonds, but were prevented. In the consideration of the sewer system the same latitude of action is allowed the Board of Contract and Apportionment as before, the purpose being to secure assessments in proportion to benefits, but the result being assessment according to no fixed rule but variation in method according to circumstances in each case; the frontage method and the area rule have both been used. The most of the sprinkling is by private contract.

Brooklyn, N. Y.—In this city grading and paving are usually assessed on property contiguous, 60% of the total being apportioned on property abutting in proportion to frontage, and 40% on property within the district (usually one-half block each side of the improved street) according to area. Repaving is paid for, one-half by the city and one-half by property, according to frontage, unless the street carries a street railway, in which case one-fourth of the total expense (which forms the railway's portion) is deducted from the burden on the property, thus reducing its proportion to one-fourth the total. The water-works supply system and mains are constructed and laid at the city's expense, while the laterals are charged on property by the frontage rule. The water revenue (the rates may be judged from the meter charge of 7½ cents per 100 cu. ft.) provides for maintenance, interest on water bonds, and a certain percentage of the debt through the sinking fund. The cost of the sewer system is entirely charged to property benefited according to area, except for reconstruction or for special relief sewers, for which the city pays. Street sprinkling is by private contract. There is no percentage limit to the amount that may be assessed on property, reckoned on its tax valuation.

Buffalo, N. Y.—This city places the cost of grading, paving and the renewal of pavements all on abutting property in proportion to frontage; and maintenance, when it requires the replacing of one-third the pavement or more, becomes a renewal. The water-works system was built and is extended by the city. The main sewers are built at the expense of property, a varying percentage being assessed by frontage and the balance over all the area tributary. The laterals are built from the proceeds of a frontage assessment. However, some intercepting sewers have been entirely at the expense of the city. Street sprinkling is assessed on property by the frontage rule.

New York, N. Y.—This city levies assessments for public improvements through a Board of Assessors, in whose province lies the deter-

mination of the particular method by which the assessment is apportioned. Nevertheless it is the common practice to assess the cost of grading and paving upon abutting property in proportion to its frontage. The cost of renewal is usually a general charge upon the city. There are no local assessments to pay for any part of the water-works system; the revenue derived from private persons is through the established water rents. All sewers are "paid for by owners of all the property intended to be benefited thereby." Any real estate owned by the city pays for public improvements the same as though it were under private ownership. The sprinkling and cleaning of streets is paid for out of funds raised by general taxation. No property can be assessed, for any one improvement, more than one-half of its tax valuation.

Rochester, N. Y.—The cost of all street improvement is assessed upon abutting property according to its frontage ratio. The water-works system is paid for by the city. In the sewer system the mains are constructed at the expense of property, partly by frontage and partly by an area charge, while the laterals are built wholly by a frontage assessment. Street sprinkling is made a frontage charge. There is no limit to the amount of an assessment fixed as a percentage of tax valuation.

Syracuse, N. Y.—Here the charter provides for assessments according to benefits, thus allowing the assessors considerable latitude. The usual practice, however, is as follows: The cost of all grading, paving and renewal is placed upon abutting property by the frontage rule; but allowances are sometimes made when this would work injustice, as in the case of an extremely shallow lot or a corner lot. The water-works system is a charge upon the city, with no personal charge except the established water rates to consumers, and no assessment upon property except an annual tax of 5 cents per lineal foot of front (corner lots paying only for their shorter front and for the other in excess of 8 rods), which is rebated upon the rates charged the owner of the same property for the use of water, but not to exceed such rates. The cost of all sewers is assessed upon property fronting upon them according to linear extent, except where the sewer exceeds 2 ft. in diameter; in this case, all expense in excess of what a 2-ft. sewer would cost is borne by all the property in its established drainage area, distributed according to the area rule. Street sprinkling is assessed upon property according to its frontage; and in this city, again, the assessment is not

limited to a certain percentage of the tax valuation of the property affected.

Newark, N. J.—Here the grading, curbing and paving are done at the expense of abutting property, and the levy is made by the frontage method, street intersections being included in this levy, and city property abutting being assessed as though it were private. On corner lots, where the long side fronts on the improvement, it is the custom to assess only 65% of the regular frontage rate. Renewal is made a charge also on abutting property. The water-works were built by the city at its expense. Of the sewer system, both mains and laterals are a charge upon abutting property, except that where a main sewer is laid the property is charged only with the cost that a pipe sewer would have in the same place. Street sprinkling is by private arrangement.

Paterson, N. J.—This city places the cost of grading and paving upon property fronting, by linear proportion. Repaving is at the expense of the city. A private corporation owns the water-works. A certain latitude in the method of making sewer assessments "for actual benefits to property" seems to hold, for in the case of main sewers a certain proportion is paid for by property and the balance by the city, while laterals are assessed "by commissioners on abutting property, each lot being assessed in addition for privilege of connection. In this manner the city is reimbursed for its outlay on mains." Sprinkling is done by appropriation from the general tax levy.

Harrisburg, Pa.—This city, in the public improvements which it actually constructs, lays the cost of paving, and generally of grading, upon abutting lots by the front foot rule. For water-works construction there is a fixed rate placed upon abutting real estate, amounting to 80 cents per foot front for 6-in. pipe, 90 cents for 8-in., and $1 per foot for all larger sizes; in the case of a corner lot, one-third is taken off the charge for the longer side. The sewers are all built at the expense of the property benefited. The cost of laterals and a portion of the cost of main sewers (as much as a lateral would cost) is charged to abutting property, the district as a whole taking the balance. The renewal of any kind of improvement can never be assessed upon private property.

Philadelphia, Pa.—The city assesses the cost of original paving upon abutting property, while grading is a city expense. Renewal is also a general charge. For the construction of the water-works distrib-

uting system there is a fixed charge of $1 for each foot fronting on any street where pipe is laid, but city property pays no part of this frontage charge. The supply system in general is maintained and extended from the revenue derived from water rates, the charges of which may be judged from the meter price of 30 cents per 1 000 cu. ft. For the sewers there is a fixed charge of $1.50 per front foot on property abutting, whatever be the size of the sewer, any additional cost being paid by the city. In the case of corner lots with sewers on both fronts there is made a deduction of one-third of the longer front, such deduction not to exceed 50 ft. There is, besides, a special charge of $5 for every connection with the sewer in addition to the usual permit charge. These sewer assessment bills are assigned to the contractor in part payment for the work, giving him a lien on the property and the right to collect in the name of the city. The city sprinkles macadamized streets at its own expense.

Scranton, Pa.—Abutting property is charged for grading by the foot front rule, "after getting a release from each and every property owner relinquishing all claims for damages in consequence of grading." Paving is also assessed by linear frontage, and kept in repair for five years by the contractor. Renewals are charged, generally, one-half on abutting property and one-half on the city. The water-works are owned by private corporations. Lateral sewers are usually assessed on adjoining property according to its linear frontage, and the main sewers upon the property in the drainage district, by a specially appointed board of viewers, "according to benefits." Street sprinkling is secured by private arrangement. The amount of an assessment against private property is not limited to a percentage of its tax valuation.

Wilmington, Del.—In this city all street improvements are paid for by the city. The water-works are owned by the city, and are now a source of revenue. Apparently the only charge to the public is from the water rents, the rates of which may be inferred from the meter charge of 75 cents per 1 000 cu. ft., with reductions for large quantities. Adjoining property is assessed for the sewer system at the rate of 50 cents per front foot and 1 cent per square foot of area for a distance not exceeding 150 ft. back from the building line. This charge is supposed to represent three-fifths the total cost of the sewers, the remainder being a city expense.

Baltimore, Md.—The cost of grading and paving is placed upon abutting property in proportion to frontage. The city escapes the expense of repairs to pavements for two years by contracting with the persons laying the pavement to keep it in repair for that length of time. There are no assessments made for water-works construction and extension. Although the city charter permits it to assess the cost of sewer construction upon property benefited by the area rule, yet for the past five or six years this has been paid for entirely by the city. Sprinkling is by private arrangement.

Washington, D. C.—This city pays for all street improvements out of the general fund. Concerning the water-works, the large supply mains are constructed from the general fund, but for the distributing system there is an assessment upon all abutting lots or land of $1.25 per linear front foot; corner lots do not pay on their longer front unless it exceeds 100 ft. The cost of the main sewers is also defrayed from the general fund; for the branch or lateral sewers built, one-half the cost is paid by abutting property according to its linear frontage, and one-half from the general fund. The cost of sidewalks and curbing follows the rule last given, which is rare for these improvements. Street sprinkling is charged to the general fund.

Richmond, Va.—Here all street improvements are made at the general expense. There is no private charge for the water-works system (which is owned by the city) except the usual requirement that connection be made at the property owner's expense. Of course, the universal water rent charge is placed upon all consumers. The entire sewer system was built by the city, for which property is assessed "annually at the rate of 10 cents per front foot of property, or a commutation tax of $1.50 per front foot." As usual, the cost of house connections is borne by those making them. Sprinkling is done by private arrangement. An unusual undertaking is the owning and operation of the gas works by the city, furnishing consumers with gas at the rate of $1 per 1 000 cu. ft.

Charleston, S. C.—All public improvements here are at the expense of the city. The water-works are owned by a private company.

Atlanta, Ga.—In this city the grading is a city expense, but all other street improvement is effected by placing two-thirds the cost on abutting property in proportion to its frontage, and the remaining one-third upon the city. The entire water-works system is constructed

without special assessments. Main sewers were built by the city, but for branches and laterals there is a uniform charge of 90 cents per lineal foot front on abutting lots or lands, except where a corner lot has already been assessed for one front, in which case 75 ft. of the second front is exempted. Street sprinkling is done by private arrangement.

Augusta, Ga.—Here the only assessments charged upon property are for pavements and sewers, for both of which property fronting upon the improvement pays half the cost, distributed in proportion to its linear frontage.

Jacksonville, Fla.—This city pays one-third the cost of all street improvements, the abutting property paying the remaining two-thirds in proportion to linear frontage. The water-works and sewer systems are paid for by the city. An assessment is not limited to a percentage of the tax valuation of the property.

Montgomery, Ala.—One-half the cost of all street work is charged against abutting property owners, and one-half is paid by the city. The water-works are not owned by the city. The sewer system is entirely a city expense. Street sprinkling is also a public charge. The city charter fixes the maximum limit of an assessment at $10 per front foot.

Nashville, Tenn.—Here all the usual public improvements are constructed and extended at the expense of the city. No special assessments are levied.*

Louisville, Ky.—The city lays the total cost of grading and paving upon the area contiguous, usually extending for one-half block on each side of the street improved, with corner lots paying 25% more than inside lots. All renewal of pavements is made by general tax levied for the reconstruction of streets. For the construction of the city's water-works there has been no assessment, the only private charge being the water rates. The sewer system has also been constructed by the city. Street sprinkling is by private arrangement. There is no limit to the amount of assessment fixed at a certain percentage of the tax valuation.

Cincinnati, O.—This city pays 2% of original street improvements, and assesses the remainder upon abutting property according to the frontage rule, but in so apportioning the assessment the city pro rates

* Compare with paragraph on Tennessee, p. 342.

as abutting property for the intersections or junctions of lateral streets, as well as for any abutting lots it owns. In repaving, such work as has been done under special acts of the general assembly (aggregating in value $8 000 000) has been borne, half by the city and half by abutting property; otherwise renewal has been paid for as has the original work. The water-works are a public charge. Sewers are made a charge upon adjoining property to the extent of $2 per front foot, the balance being paid by the city. No assessments are made for street sprinkling. Property petitioning for an improvement may be assessed its full value; but when not petitioning it can be assessed only to the limit of 25% of its value.

Dayton, O.—Here the cost of all street improvements is assessed upon abutting property by linear frontage, except that the city pays for street and alley intersections. The contractor maintains the pavement laid by him for five years after its construction, after which it is repaired at the expense of the city as is the usual rule. The water-works system is a general charge; except that, of course, property has to pay for the house connections. The storm-water sewers are built by the city, but the cost of sanitary sewers is assessed upon the property benefited, usually by the abutting foot. Street sprinkling is assessed upon abutting property in proportion to its frontage. The limit of assessment for sewers is $2 per foot; on other improvements, 25% of the tax valuation.

Indianapolis, Ind.—In this city all street improvements are assessed upon lots or lands abutting on the street, in proportion to linear frontage; except that one-half the cost of street and alley intersections in any case is assessed upon property fronting on the intersecting street or alley for a distance up to the next street encountered; for city lots the municipality is liable as other property holders are. The city contracts with the Indianapolis Water-Works Company for its water. The cost of local sewers is assessed upon abutting property in proportion to area, unplatted land being considered to have a depth not less than that of adjoining lots nor greater than 200 ft.; the city's lots bear their due proportion. For main sewers, such part of their cost as would construct a local sewer in the same place is apportioned upon abutting property by the method given for local sewers. The balance is distributed over all the lands included in the district drained "in the proportion its area bears to the total area of the district, in-

cluding abutting property holders, as well as the holders not situated on the line of such drain or sewer." The city pays no part of the expense, except as an owner of property. The cost of street sprinkling is charged to abutting property by linear ratio.

Peoria, Ill.—Here the contiguous property is charged with the total expense of all street improvements, basing the rate on linear frontage. Asphalt pavements are guaranteed by the contractor for a period of five years. The water-works are owned by a private company. The cost of the sewer mains and laterals, in any district, is considered jointly, and the entire amount is assessed upon the property benefited according to the area rule. While the city is not required to pay any portion, it has been its general custom to pay a certain percentage of the cost where large mains are constructed, so as to relieve the lots and lands from burdensome assessments. The sprinkling is done by private arrangement.

Detroit, Mich.—This city pays the cost of grading and paving the street and alley intersections, but all the balance is assessed upon abutting property by the linear method. The expense of repaving is carried by the city. The outlay for the water-works is borne wholly by the water rates charged against consumers. In the sewer system the mains are constructed by the city, and the cost of the laterals is assessed upon adjoining property in proportion to frontage. Street sprinkling is controlled by private contract.

Milwaukee, Wis.—Here adjoining property is charged with the expense of grading and paving, except the cost of street and alley intersections, which falls to the city. Repaving is done at the expense of the ward unless the renewal involves a pavement with a concrete foundation, in which case the expense is borne as in the case of an original work; however, under such circumstances, the property affected is credited with the cost of the original pavement. In the water-works system half the cost of laying a 6-in. main is charged against the property on each side of the street, corner lots receiving a deduction of one-third their lateral frontage. The balance is paid from the water fund, which is created by the revenue of the water department, excluding the supply system for the construction of which city bonds have been issued. For the sewer system the property on each side pays one-half the cost, providing this does not exceed 80 cents per foot. Corner lots are allowed a deduction of one-third their total frontage. The sewerage

district pays the balance. Street sprinkling in central wards is paid for by the ward fund (raised by general taxation on all property in the ward). In outlying wards this expense is assessed upon abutting property by the frontage rule, the ward fund, however, being drawn upon for the portion chargeable to the street and alley intersections. In this city the assessments cannot exceed the tax valuation of the property, which is two-thirds its actual value.

Minneapolis, Minn.—In this place grading is done at the expense of the ward. The city pays for paving and repaving street intersections, and the remainder is assessed upon abutting property by linear frontage. The contractor for an asphalt pavement agrees to keep it in repair for ten years after the date of the acceptance of the work by the city. For water mains abutting property is assessed a fixed amount of 65 cents per foot front, this being considered the cost of a 6-in. main. All other expense for the water-works system falls directly upon the city. For the sewer system there is a similar fixed charge upon abutting property, amounting to $1 50 per front foot, the estimated cost of a 15-in. sewer, all additional expense being borne by the city. The street sprinkling is done under the direction of ward officers and its cost assessed upon adjoining property in proportion to frontage.

St. Paul, Minn.—The total cost of all street improvements in this city is assessed upon abutting property, usually by the front foot. The water-works supply system is paid for by the city. For all pipes of the distributing system there is a frontage charge upon abutting property of 10 cents per lineal foot for a period of ten years, regardless of the size of the pipe; the balance is met by the city. The Board of Water Commissioners is required to fix the water rates so as to pay for all running expenses and minor extensions, and to provide for a sinking fund. The cost of the sewers is assessed upon adjoining property to a maximum limit of $1.75 per front foot, although the law permits larger assessments; all excess is paid by the city. The cost of street sprinkling is borne by the property in proportion to its linear frontage. There is no limit to the amount that may be assessed, fixed by a certain percentage of the property's tax valuation.

Burlington, Ia.—Grading is charged to the city. Brick pavements are paid for by assessment upon abutting lots, except the cost for street intersections, which the city pays. The paving of alleys is borne by contiguous lands according to area. Repaving is a charge upon

the city. The water-works system is owned by a private company. As part payment for the cost of the sewers there is a charge upon land not to exceed 1 cent per square foot for a distance not greater than 200 ft. from a sewer. Sprinkling is a city expense.

Kansas City, Mo.—The cost of all street improvements is assessed against the adjoining lots and lands. On those designated as business streets the property owners may choose between two or more kinds of pavement selected by the Board of Public Works, and on residence streets a majority remonstrance prevents the work. The maintenance of paving is guaranteed by the contractor for five years, without additional payment to him. The water-works system is owned by the city and is self sustaining; no assessments are levied. Sewers in general have their cost charged upon the lands included in the district, in proportion to the area, exclusive of streets and alleys. Public sewers are built at the expense of the city. Street sprinkling is effected by private arrangement. There is no specified limit to the amount that may be assessed against property, depending upon its tax valuation.

St. Louis, Mo.—This city bears the expense of grading. All other street improvements are made at the cost of adjoining property, according to its linear frontage. City lots bear their proportional part. The contractors are given the special tax bills in payment for their work. Repairs to paving which become necessary within five years of its construction are made by the contractor. The water-works system is paid for, both in maintenance and extension, entirely from the rates collected from consumers; consequently it is no expense to the city nor to property as such. Money which had formerly been assessed against property for construction and extension has been refunded. The range of water rates may be judged from the charge of $1 per room per year for hotels, boarding-houses and tenements; $9 for a twelve-room residence, and meter rates of 30 cents per 1 000 galls., with reductions for large quantities. Of the sewer system, the public sewers, or those having no immediate relation to property, as the intercepting and trunk sewers, are paid for entirely by the city. The district sewers, comprising the lateral sewers with their branches, and emptying into the public sewers, are paid for entirely by private property. For these the amount due is that portion of the entire cost (in any district) of the district sewers which the area of the lot or land in question bears to the total area of the district, excluding streets. There

are also private sewers, which are constructed entirely under private agreement, plans, supervision and cost, and flow by permission into the city sewers. Occasionally, where the system is adequate, such sewers are adopted by the city, in which case the parties who constructed them are reimbursed by the city. Street sprinkling is made a charge upon property by linear frontage, the city paying the contractors in each of the fifty-four districts and collecting the tax bills itself, usually with the general tax. The cost varies from 2½ to 3 cents per front foot. The amount assessed against property for any one improvement under a single ordinance cannot exceed 25% of its tax valuation; the city bears all excess.

Little Rock, Ark.—At this place all public improvements constructed in the city are paid for by assessment upon all taxable property within the "improvement district," in each case established, in proportion to the value of the property.* The water-works system is owned by a private company. Statute provides that an assessment cannot exceed 20% of the tax valuation of the property affected.

New Orleans, La.—This city assesses upon abutting property, by the frontage rule, three-fourths the cost of all street improvements and bears the remaining portion itself. For avenues having neutral ground the proportion is changed to two-thirds upon the property and one-third upon the city. The contractors are to keep the pavements in repair for a specified time, varying from one to twenty years. The water-works are owned by a private company. There is no sewer system for the city. Street sprinkling is done by those contracting for maintenance of pavements, and by the city after the expiration of such contracts. The amount of an assessment is not limited to a percentage of the tax valuation.

Sioux Falls, S. Dak.—Here the cost of all street improvements is assessed upon abutting property, except that of street intersections, which the city pays. The water-works are owned and operated by a private corporation. For all sewer construction there is a fixed charge of $2.30 per front foot upon business property, and half this amount upon residence property. The city pays for sprinkling the streets.

Omaha, Neb.—The city pays half the expense of grading. The remainder is assessed upon property by linear frontage. If three-fifths of the property holders petition for the grading, all the expense is charged upon them. Subsequent street improvements are all assessed

* Compare with paragraph on *Arkansas*, p. 342.

upon abutting property in proportion to extent of frontage; the city, however, pays for intersections. The water-works system is under private ownership. Main sewers are built by the city. The cost of the laterals is assessed upon adjoining property by linear frontage. Street sprinkling is a private expense. Tax valuation does not form a basis for fixing a limit to the amount of an assessment.

Topeka, Kan.—The city is charged with the expense of grading. The cost of paving is assessed, by a very elastic system, upon property benefited in proportions determined by appraisers appointed especially for the purpose. A water-works company holds a franchise until 1901. All sewers are also constructed at the expense of property; the cost being apportioned as before given for pavements. Street sprinkling is by private arrangement. Assessments are not limited in amount to a percentage of the tax valuation.

Salt Lake City, Utah.—The city pays half the cost of grading the abutters' portion of the streets, and all the cost of intersections; the remainder is included in the paving assessments. Subsequent street improvements are assessed upon abutting property, according to its extent of frontage, corner lots receiving no deduction. Before distributing this assessment, the cost of intersections (which is paid by the city) is deducted, as is also (as usual) the cost of paving between and 2 ft. outside of the rails of street railways, which is a charge upon the street railway company. The pavements constructed are guaranteed by the contractor for five years, after which the contract gives the city the right to require the contractor to keep the same work in repair for an additional term of ten years at the rate of 8 cents per square yard per year. This amount is paid from the general fund of the city. The water-works supply system is paid for out of the general fund of the city, and the distributing system by assessment per front foot of abutting property, with no deduction for corner lots. Sewer mains are built at the city's expense; laterals are made a charge per front foot of abutting property, with corner lots given a deduction of 25 ft. Written objection to a proposed public improvement by the owners of half the property frontage will defeat its prosecution if filed within twenty days of the first publication of the notice that such improvement is intended. Street sprinkling is at the city's expense. There is no limit to the amount of an assessment, except, of course, the cost of the work.

Seattle, Wash.—In this city all the land, including street areas, situated between the termini of the improvement and within 120 ft. of the street-line on each side of the street improved constitutes a local improvement district, except that when a cross street has already been improved, its area is excluded. The total cost of any street improvement under consideration is then divided by the total frontage (including that of unimproved cross streets) on the improvement, and of the rate so determined 40% is assessed upon property within 30 ft. of the street lines, 25% upon property lying between lines uniformly 30 and 60 feet distant from the street, 20% upon all property between 60 and 90 ft. from the margin of the street, and 15% upon the remaining zone extending from 90 to 120 ft. in distance. "In this way it makes no difference whether a street is straight or curved or whether we turn a right-angle corner, the area included between such lines constituting the assessment area," and the zones indicating a varying percentage of charge, being always bounded by lines at the specified distance from the margin of the street. The city pays the assessment charged to street areas from the general road fund. The water-works system is a general expense upon the city. Branch sewers are constructed by assessments levied in the manner provided for street improvements; mains and intercepting sewers are constructed mainly at the expense of the city, the adjoining property paying for only what would have been the expense of a sewer suited to its needs. The total assessment levied, in any case, cannot exceed 25% of the tax valuation of the property constituting the assessment district.

Portland, Ore.—Here the cost of all street improvements is assessed upon abutting property in proportion to its frontage, except that the cost of intersections is a special charge upon the two lots nearest the corner, the corner lot being assessed for five-ninths and the one adjoining four-ninths. The contractor keeps the pavement in repair a stated number of years; afterwards this falls on the city, as usual. The water-works system was built at the expense of the city. In the sewer system, the cost of the laterals is assessed upon property fronting on the sewer, and the cost of trunk sewers is distributed over the districts drained by them in proportion to the contiguity of the property. The city pays for street sprinkling. There is no limit to the amount that may be assessed as fixed by a certain percentage of its tax valuation.

San Francisco, Cal.—Here the cost of grading and paving is made an assessment upon abutting property by the frontage rule. Repaving is paid for by the city. The water-works system is private property. The water rates are fixed by the Board of Supervisors. Main sewers are built at the expense of the district, and the cost of laterals is assessed upon property in proportion to its linear frontage. A local assessment for a public improvement cannot exceed one-half the tax valuation of the property.

Consideration of Methods and Principles.

As discussed more at length in the first part of this paper, special assessments do not properly extend to the so-called assessment of benefits and damages as employed in the condemnation of real estate for public purposes; consequently, this consideration covers only their exact field of application, that is, the assessment of the cost of municipal improvements upon property in proportion to the benefits received by it. The consideration of the levy and collection of the assessment is but indirectly important to the engineer, and is believed to be adequately treated in the first part of the Appendix and sufficiently illustrated by the Exhibit. The real discussion, then, concerns more particularly the standard methods of distributing the assessment. This question can be best judged by the principles established by the courts (given under the title "Interpretation and Judicial Decisions," in the Appendix) and by considering the actual practice of the fifty cities just given. Of course it cannot be expected that these fifty cities will illustrate all the salient facts and interesting details of methods in vogue, but it is thought that they furnish a sufficient basis for a broad interpretation of the principles involved when considered in connection with the judicial decisions mentioned, besides exhibiting many characteristic customs and peculiarities that have an individual interest.

Considered geographically, the eastern cities, as a rule, have been inclined to meet a considerable portion of the cost of their public improvements by general taxation. This fact is evidenced by a frequently occurring provision that the assessing board shall determine in each case the method to be followed in distributing the assessment upon private property; by the refusal of one state, Pennsylvania, to permit any assessment for the renewal of local improvements; by the

payment from the general fund of the larger portions of the cost, and frequently of the total expense of certain public works; and, in some cases, by the practically complete abeyance of assessment upon private property. This larger share of the general public in bearing such expenses seems to be deeply ingrained in the policies of many eastern cities, a recent indication of which is furnished by the fact that the proposed charter for Greater New York practically adopts the methods previously in vogue. Neither have the southern cities made use of the system very fully. There are notable exceptions to this general statement; but probably the past adverse economic conditions, interfering to an extent unknown elsewhere, have thus far prevented its general application.

The principle of special assessments has had its greatest development in the cities of the Northwest. This is but natural, as they have had the advantage of the earlier experiences of the older cities, and were thus enabled to profit by them. Such cities, too, have more frequently confronting them the problem of providing public buildings and general betterments, and of meeting the expense of the numerous necessities and varied functions of a rapidly growing municipality, besides constructing the usual assessable improvements, all in a short space of time; and it is to be expected that there should be an endeavor to keep the tax rate as low as circumstances would permit by making a full use of the principle of assessments for local improvements. New cities can also formulate a general plan of special assessments which will apply with great fairness and justice to all such improvements of the future, when an older city that has constructed considerable portions of its public works under inharmonious methods of accepted custom is handicapped in an attempt to secure the most just accord.

It is a quite common practice for cities to pay for the grading of streets, but it is more customary to assess the cost upon private property. By far the greater proportion of the latter class charge the total expense in proportion to linear frontage. Some assess a certain percentage, usually from one-half to three-fourths of the total, but sometimes all except the cost of street and alley intersections. Occasionally the assessment is levied partly by frontage and partly by area, and rarely it is charged entirely by the area rule. Some cities accept streets only after they have been satisfactorily graded, and other

requirements are employed by different cities to prevent the complications and suits for damages that seem inclined to swarm about improvements of this character.

In the subject of pavements there is a great diversity in methods of apportioning the cost. Of the various cities given, about 30% assess all the expense of paving on abutting property according to its linear frontage, nearly as many make it a charge upon the city alone, and the remainder divide it between the two in varying proportions. Of the latter class the favorite method seems to be to assess, by linear frontage, the total cost of the work, except the paving of street and alley intersections. Others except both intersections and the proportional charge upon city property fronting on the improvement; and in some, only the assessment upon city lots and lands is a public expense. Others divide the whole cost between the city and abutting property directly by ratio, which charges the property with a percentage varying from one-half to three-fourths of the total, the city paying the balance. A few cities incline toward the distribution of the assessment by the area rule upon lots and lands within a certain distance of the improvement, either in its entirety or in combination with the frontage method.

It is quite customary for cities to provide, by general law or in contracts with the street railway companies, that the latter shall bear the expense of paving their tracks and for a specified width outside. In such a case the portion borne by the street railway is usually deducted from the total cost and the remainder distributed between the city and private property in the prescribed way; but in Brooklyn, the street railway's portion is deducted from that part which would be assessed upon the property, the city still paying its specified percentage of the total, and so having no share in the consequent reduction in cost.

Where the city does not pay for the paving of street intersections, this expense is frequently included in the total and distributed pro rata in the general frontage. Occasionally it is made an additional charge upon lots near the corner, and in some cases it is assessed upon the frontage of the cross street for a portion of, or for the total distance to, the next street parallel to the improved one. These last methods are open to the objection that they would be likely to discourage the subsequent paving of the cross street when it is not in the

natural line of travel, a difficulty that confronts some of our cities, even if this additional burden is not imposed. Corner lots, as such, are variously treated. In some cases each margin is considered a front on its proper street, without a modification in the rate of assessment; in others, the corner has imposed upon it an additional percentage, but more frequently a certain portion of the charge upon it is abated.*

While the methods given for levying special assessments generally appear to be by some fixed and definite rule, it must be remembered that this is by no means usually so fixed by statute, but rather it is frequently a crystallization of custom, employed successively in recurring cases, under which improvements are made, and so formulated for each work under the more elastic charter provisions. Where this elasticity in the method is permitted, it generally follows the established custom and allows of modifications where necessary; but in some cases it is carried to an extreme which may give color to the charge that political influence has attempted a mitigation of the levy, and at least it prevents a general method of practice being given for the city in question. This extreme is as serious as the other which might follow from a rigid requirement, though fair and equal in general, resulting sometimes in cases of hardship and perhaps injustice to an extent that would not be permitted by the courts. On the one hand it is best that methods should be reasonably consistent and constant that property owners may know about what to expect, and the injustice of arbitrary irregularity be avoided; on the other hand there ought to occur an opportunity to vary the mode in cases where good reason exists, for the purpose of making the charge correspond to the benefits received. Concerning the question of the ratio of the cost that should be borne by the city in general, the same reasoning would have less force; and this might well be definitely fixed by charter or by general statute provision.

Although financial considerations and usage are important factors, in any case, in determining the portion of the total expense that shall be borne by the city and by property respectively, yet such factors have little importance in the abstract consideration of its most just apportionment between the two. In practice this distribution varies from one extreme, where the city pays the total cost, to the other, in which private property is charged with the entire burden. The one

* See Appendix, Section 20.

is permissible because public improvements are considered of such general utility that their construction may be effected by general taxation, though there have been cases where this has been discouraged; and the other procedure is upheld as charging property with no greater burden than is equalized by the direct benefit to it. Both extremes have a broad sanction as not violating the lawful realm of municipal powers. If both these widely divergent methods are permissible because of the adequacy of resulting advantage in either case, it would certainly be reasonable to distribute the outlay between the two, as is done in many southern cities as well as elsewhere. Not only this, but it would seem more just and equable to divide thus, as the expense would then fall within both spheres which directly profit by the improvement, instead of the one or the other receiving a substantial benefit without sharing in its cost.

Those advocating the principle of payment by the city ignore the direct advantage, both pecuniary and utilitarian, that a good pavement secures to the property affected, an advantage sometimes augmented by the privilege given to the property owners to have a voice in the kind that shall be laid. They disregard the fact that general taxation is levied also upon personal property, the value of which is not increased by the construction of public works. They forget that the most potent factor in discouraging a demand for lavish expenditures for unnecessary improvements is making the insistent abutter pay directly for his gain, instead of bringing all the city to contribute its equal rate. Partisans of the principle of payment by the property seem to disregard the fact that the pavements are for general public use, and beneficially affect all the people and all those having business or commercial interests in the city The claim that although paving confers a general benefit, it will become entirely compensative when all the streets are paved by assessment, will not stand, because driving and teaming naturally follow certain lines and routes which will always require the maximum of attention, leaving other streets ignored; and granting for the moment that this argument were sound, what would be gained, when every property holder has paid his part, over the method of letting every citizen pay a part constantly as the work progresses, and reaching the same aggregate in the end. Those who make the greatest use of pavements and have the largest interest in their general excellence and extent are by no means those

upon whom a corresponding charge can be fixed if linear frontage governs. To an extent the public use of the streets is proportional to property possessed, and to that extent it would seem proper that the cost of pavements should be met by general taxation, which bears upon each in proportion to his property. While nothing is proved by the fact, it may not be amiss to note that the tax rate in those cities, given as paying entirely for their public improvements, happens to be even less than is the average rate.

The rule most just and fair, then, would be to lay upon both property and municipality its portion of the cost of pavements. Private property directly profits from its construction; the general public derives undoubted and substantial benefit as well. Let each be charged with its due proportion, as measured by the relative advantage of each. Were cities to pay from 20% to 40% of the total, individual burdens would be lighter without removing the wholesome restraint of the still remaining charge against extravagant demands, and the assessment of the remainder upon private property would free the city from too great an outlay for its needed improvements. This principle has partial recognition in many of the cities where assessment falls upon property by their assuming the cost of paving street intersections, or the portion that would attach to city property abutting, or both. This amount might well be substantially augmented in order to secure the most equal justice, and it is believed that this result will be gradually approached, and the error inhering in either extreme course, though permissible, will be finally merged into the more exact justice secured by proportioning the charge upon both interests according to the benefits received by each.

Nearly all the cities distribute the assessment upon property in the proportion that the frontage of any lot bears to the total frontage on the improvement. Exceptions to the rule are Brooklyn, Louisville and Seattle, where proportions (constant for each city, but varying for the different ones) of from two-fifths to the total amount are assessed according to the area that the lot or land (within a certain distance of the improvement) bears to the total area within the whole assessment zone or belt so formed. The width of such zone is generally fixed to include a distance on each side half way to the next parallel street. City lots are generally so regular in size, shape and distribution that as a rule the frontage plan is quite fair in effecting

the assessment; yet there are cases where inequality will result, as where some of the abutting lots border upon the improvement with their longer side, while others so front with their shorter side. To compensate for this and similar irregularities, there is growing the commendable practice of assessing 60%, more or less, by the frontage method, and the remainder according to the area rule. This method need not be made complex or unwieldy. It lessens reason for complaint and objection, and decreases the chance of illegality in the assessment*; and if, in any case, there is absence of the irregularity in the condition of the lots that would furnish the reason for applying this system, the resulting allotment of the charge will produce the same result that would be effected if the frontage rule only were applied. Significant of the movement in this direction are the provisions of the proposed amendments to the charter of St. Louis, now pending. The proposed change makes one-fourth the total cost of paving assessable according to the frontage of abutting property, and the remaining three-fourths is to be assessed by the area rule upon a district extending laterally to a line "as near midway between the street to be improved and the next parallel or converging street on each side of the street to be improved as the lot lines * * * will permit."

Though many cities assess for the renewal of pavements by the same method they use for the original work, there is a significance in the fact that of the cities given as assessing for the first paving, about 40% charge the city with all, or a greater percentage of the cost of repaving. Nor can it be denied that there is a basis of sound reasoning in the stand taken by the Pennsylvania courts, as given at some length in Section 26 of the Appendix, denying the right to assess the cost of renewal, though the resulting difficulties encountered by some of the Pennsylvania cities in repaving, and the policies of the other States both indicate that this State carries the argument too far. Nevertheless, when suburban property has been made more definitely urban by the construction of a pavement along its front, when lines of travel and traffic have become concentrated and established, and when a city has reached an age of the life of a pavement, and has disposed of the mass of expenses crowding upon its sudden growth, there is much reason and justice in charging it for a renewal with

* Appendix, Sections 16 and 20.

double the percentage that it pays for the original pavement. Provisions permitting a majority of property owners to choose the kind of pavement to be relaid, and, in consequence, charging them as for an original work, or the laying of a better pavement than the first, and so charging all the excess cost upon the property*, furnish wholesome variations that might frequently be taken advantage of and relieve a city of a portion of its percentage. When repair amounts to a renewal is an interesting question. Buffalo decides that when one-third or more of the pavement must be replaced, it becomes a renewal.

Repairs are always a general expense to the city, except where maintenance clauses occur in the contract for the original work. The incorporation of such clauses is of recent origin and the range of judicial opinion upon their legality is covered by Section 27 of the Appendix. The diversity in the decisions there given is marked; but if an opinion may be hazarded now upon the probable outcome, it would be that maintenance clauses will be held valid where the contract makes this agreement a simple warranty of the quality of material and work, and where the term of years, during which repairs (if found necessary) must be made by the contractor, is not so long as to make it appear to be an attempt to put indirectly upon the property the cost of repairs. The trend of the more recent judicial decisions seems to be in this direction. A large number of cities include maintenance clauses in their paving contracts, and the custom is growing; a recent example being the clause in the new charter for Greater New York authorizing their incorporation.

For the mains and laterals of a water-works distributing system, although circumstances lead a majority of the cities to construct either partially or wholly from the collection of water rates, a large number generally follow the same method of apportioning the assessment upon private property that prevails in the case of pavements. The system of apportionment suitable for paving assessments seems very applicable also to such a distributing system. Still, the percentage allotted to private property might well be increased in the case now under consideration, because, unlike the streets, the water-distributing system is not subject to constant use by the general public over all its extent, but rather its utility is monopolized by those connecting with

* See Exhibit, Chapter vii, Section 6.

the pipes; and because the use of public water will be encouraged where a considerable expense is thus charged to property for bringing the water within its reach, whether the opportunity is availed of or not. It is quite customary for assessing cities to charge property only to the extent that would cover the cost of a small size of pipe; and this by assessing its actual cost, or a fixed charge per front foot varying from 65 cents to $1.25. Occasionally there is an annual charge per front foot for a term of years, intended to amount to the same as a single total levy. The expense of house connection is generally paid by the house owner, and occasionally there is an additional fixed charge for connection to increase the city's revenue; but as the latter would tend to discourage the use of the water, its imposition is impolitic. The cost of hydrants, valves and other public appurtenances naturally falls upon the city.

Of the 3 196 water-works systems in this country, furnishing a full supply to 3 480 cities and towns, 1 489 are owned by private companies*, but their number is constantly decreasing under a general policy favoring municipal ownership. The cities owning and operating their water-works have generally paid for the supply system by issuing water bonds, the interest of which, as well as the principal as it becomes due, is paid by general taxation, or more frequently by so fixing the water rates charged consumers that the resulting revenue shall, in part or even wholly, provide for this expense, as well as for the ordinary cost of maintenance. The size of the rates varies greatly, the enormous range being much influenced by the varying customs of different cities, some paying all the water-works expenses from the income derived from water rates, others so meeting a smaller portion of these expenses, and others providing for only a light outlay from the direct contribution of consumers. Of the half-dozen cities whose rates are given, the charge for metered water varies from 4 to 30 cents per 1 000 galls., the average being about 10 cents, when the daily consumption is only about the amount stated.

Whether all the expenses occurring in the management, maintenance and extension of the water-works system should be met entirely from the revenue derived from water rates or rents may well be questioned. Undoubtedly this method is legal, but it is doubtful if it is entirely just. Of course if water were used by every property owner

* *Engineering News*, Vol. xxxvii, p. 265.

there would result a universal contribution, the same as when taxation meets a portion of such expenses; but such is not the case. All the general public profit from the water-works, the city as such secures direct benefit in fire protection and in other ways, and it is submitted as tending only to equal justice that the city itself should share in the expense, perhaps to the extent of providing for the sinking fund to meet the payment of its water bonds, or an equivalent contribution. The practice of a large number of cities in assessing upon adjoining property the cost of laying a small size of pipe is also praiseworthy as an aid to the distribution of the cost more entirely where advantage results. Such practice as that of charging vacant lots, adjacent to water mains, with an annual tax per front foot does partially compensate for escaping all other contribution. The real purpose for which water-works are inaugurated, and the justification for their existence,—the sanitary welfare of the citizens and their better protection and comfort,—will be defeated to a greater or less extent if the rates are high enough to discourage connection; and compulsory laws under such circumstances cause irritation and objection. A certain contribution from the general taxation and partial assessments for the extension of the distributing system not only lessen the water rates and promote justice, but tend to encourage the use of water by those so charged; for, otherwise, they will secure no direct return for the assessment.

In a majority of cases the city pays for main sewers, either wholly or all above the usual assessment for a branch sewer. A large number also assess this expense by the area method upon the property affected, either entirely or all exceeding the usual charge for a lateral, as before. Less commonly a percentage is assessed, and the city pays the balance, or the cost is divided between an area and a frontage charge, or other plans are followed in its distribution. Of the methods pursued in providing for the collecting system, consisting of the laterals or branch sewers, a plurality prefer to charge the cost upon abutting property according to the frontage rule; though nearly an equal number have an arbitrary rate per foot front varying from 30 cents to $2, the city to pay the balance; and a considerable number assess the cost either upon the drainage district or upon a zone of a certain width on each side of the sewer, in the ratio that the area of the lot or land in question bears to the total assessed area, streets being

excluded. Of the remaining methods, some divide the expense between the city and private property by various processes, others charge it upon property by a combination of the frontage and area rules, and sometimes the city bears the whole cost.

The frequently occurring plan of assessing upon contiguous property the equivalent expense of a sewer of small size, where a large sewer is placed, is commendable. This method would obviously have no advantage where the total cost of both mains and branches are together distributed *pro rata* upon all the property benefited, nor any application where the city pays entirely for its sewer system; but where adjacent property is charged with a certain part or all the expense of the sewer, inequality would result if the method just indicated, or an equivalent specified fixed charge not depending on the size of pipe, is not applied. Necessarily the larger sewers are laid on the lower ground where, except manufactories and similar industries, the less valuable and productive property occurs. Here, also, are more generally found tenements and the habitations of laboring men who are less able to meet the burden, while the commercial districts, and especially the dwellings of the more prosperous, are in the higher portions of the city, where the sewers are naturally of smaller size. The latter classes of citizens make the greater use of sewers, and it would manifestly be unjust to fail not only to lay upon them an equal burden, but to charge them even a smaller amount than the average. The cost of appurtenances, like manholes, lampholes, catch-basins and flushing tanks is sometimes met by the city and sometimes included in the cost of the sewer and so distributed. The disposition of these expenses depends upon the provisions of law.* House connections with the sewer are made at the expense of the property. In addition a few cities impose a special charge for the privilege of connection for the purpose of increasing the sewerage fund of the city; but this is to be deprecated as tending to discourage the general use of the sewers, which has become a sanitary necessity in cities.

The question of the distribution of the cost of a sewer system is also a complicated one, whether considered in the light of practice or principle. All the city has an interest, both general and sanitary, in its sewers, and the property-owners have a direct interest as abutters as well as a particular, but more general, one in the larger mains of their

* See Exhibit, Chap. viii, Secs. 12 and 13.

district sewers. As far as the trunk sewers are concerned, their construction is of more general import to the city as a whole than to any individual users, and their cost might well be paid by general taxation. Whether or not the city's share in building sewers should always be devoted to these mains, because they have the least direct connection with property, may be uncertain, as custom or local usage may dictate the assumption of the cost of work on street intersections or in front of city lots, parks and other property, or other expenses, besides the occasional defaults that come upon the city, all of which would probably equal the proportion suggested. All the reasons already given for considering it equitable for the city to share in the expense of its water-works system apply equally to its sewer system; where there are no storm-water sewers (a separate system) for which the city usually pays, it is but just that the city should aid in the construction of the more usual combined system, which has to receive the storm water from the streets. It would be unfair to expect lots or lands, so distant that they may not be able for years to secure connection with the system as it develops, to contribute much toward paying for trunk sewers which will at best be of only indirect special advantage to them; and it is believed that the city assuming a share, to the extent of 20 or 30% of the cost of its sewer system, would furnish but a fair equivalent for its benefit, and make less burdensome the individual assessments which so frequently cause objection and retard the construction of these necessary improvements.

Of the methods followed, perhaps the most adequate plan of dealing with the portion of the expense of sewers that is to be assessed is that common one of considering together all the sewers of each sewer district and distributing the cost over the district in proportion to the advantage received. In many cities this allotment is attempted by the frontage rule, but deep lots generally have a larger share in the use of sewers than have shallow ones of the same frontage. The amount of storm water to be removed from lots is far from having a definite relation to frontage, and other irregularities result. Other cities apportion this assessment by the area rule, but of equal areas that which has the greater frontage enjoys conditions favoring a larger number of buildings or other improvements which imply a greater interest in the sewer system, and therefore should furnish a correspondingly larger contribution; and as systems are often built a portion at a time, lands

remote from the constructed portions should not be required to pay equally with lots that are enabled to make use of them at once.

In consequence of the inequitable features inhering in both systems, in numerous instances it has become an approved method to combine the two processes and assess 40%, more or less, by frontage and the balance by the area rule, or to apply some equivalent procedure that will effect a similar combination of methods. This system of apportionment is growing in favor. It corrects the more serious errors of either method used alone. It is not complex in application, and in principle it is as definite and as easily understood by the people affected as either single process. Probably no more adequate plan for sewer assessments has been extensively used than, after the city has contributed its due portion, assessing by frontage an amount equal to the cost of a smaller size of pipe upon abutting property, as previously mentioned, or an equivalent amount, and distributing the remainder in proportion to area.

In some Massachusetts cities the plan has recently been applied of partly paying the cost of the sewer system and its maintenance by a sewer rental corresponding in its principle to the water rates of water-works systems. The private contribution to sewerage construction should correspond very closely to the use made of them; and to effect this, Brockton and other Massachusetts towns* have adopted the plan of such an annual charge depending upon the amount of water used, claiming that the quantity of sewage to be disposed of can be approximately estimated by reference to the water rate. If this plan does not tend to discourage the use of sewers, if it does not too much complicate the system of assessment, and proves otherwise practicable, it may furnish a valuable addition to the methods of apportionment. Its practical operation will be watched with interest by those making a study of special assessments.

Of other classes of assessable works that of street sprinkling is growing in importance, and is becoming quite common. About half of the cities given make sprinkling a public concern, and a majority of these assess the cost upon abutting property according to its linear frontage. In Sections 22, 23 and 24 of Chapter VII of the Exhibit are given details of the method of providing for such assessments, which must have charter sanction to be legal. The same legislative counte-

* See *Journal* of the Association of Engineering Societies, Vol. xviii, pp. 1-63.

nance would seem fully as necessary to effect the assessment of municipal duties which have been generally considered a city charge; but with such provision, street cleaning, for example, may be assessed.

To guard against wanton extravagances, such as are mentioned in the Appendix, Sections 17 and 28, as well as to protect private interests against lesser encroachments or undue burdens, it is the condition of a considerable proportion of the cities to be restricted in the amount that can be assessed for each improvement. This limit is sometimes given as a certain amount per foot of frontage or of area, but is more frequently a fixed percentage of its tax valuation. For the cities here reviewed this ratio varies from one-fifth to unity. Occasionally there is a variation, such as a limit of 25% if property does not petition for the improvement, which becomes 100% where petition is made. There may be much question about the proper amount of this percentage. Certainly it should not be so small as to prevent necessary works, nor so large as to offer no effective check in preventing undue burdens. Its application may be in complete abeyance; but if a contingency arises when its influence is required, immediate advertence to its agency furnishes a ready remedy against excessive charges.

The principle of special assessments for public improvements is too firmly established and too well proved to be questioned. Although the attempt has here been made to indicate the injustice of certain extremes of practice that are in vogue, and to suggest methods that should secure a more exact equity, yet the author realizes the undesirability and impossibility of an attempt to consider any rule of apportionment fixed and rigid. The differing conditions, requirements and circumstances of municipalities make a system that may be most impartial for one city unfair for another; and here the elasticity of the principle exhibits its most salutary quality. While so framed as to preserve the essentials of justness, its details may readily be adjusted to harmonize with local conditions.

But this elasticity, so efficacious in its general scope, cannot be invoked to unsettle established practice without defeating the justice which it should serve. Uncertainty of what to expect, or constant liability to change, is frequently worse than the opposite extreme. Where a city has for years made its improvements by a certain method it would obviously be unfair to change completely; as where the cost of paving streets has been a city expense and a portion of them have

been so improved, it would be inequitable to property owners on streets about to need pavements to change this policy to one requiring the abutters to pay thenceforth for such work by assessment, because they have already contributed their share by general taxation to the improvement of the streets that have been paved, and should therefore obtain an equivalent return for their own.

Cities having, then, a system established by laws and usage cannot radically change, even if the proposed methods are better. The approach to superior procedure must be by successive approximations made when conditions favor revision, and in a manner that will most equably distribute the charge, as indicated in the light of past contributions as well as of future assessments. A new city, just adopting a system, can escape much of this labor toward more perfect methods by securing, in the beginning, a plan suited to its circumstances; but even here it is recognized that any system may be somewhat tentative, as it may not develop the efficiency and adequacy expected. Further, the extension of the principle to improvements theretofore not covered by special assessments involves experimental methods that can be perfected only by the test of experience. And so in any case occasional, but not injudicious, revisions must be made, the effect and influence of the local law, the experience of other cities and the legal interpretation of the laws, all guiding toward superior provisions. In this way practice and theory may more closely unite, and, by impartially distributing the charge wherever the benefits are received, secure that equal justice, the necessity for which forms the plea of the opening paragraph of the paper.

APPENDIX.—THE LAW OF SPECIAL ASSESSMENTS.

Introduction.

1. Nature and Limitations.—In so far as a special assessment is a contribution enforced by the authority of the state to raise revenue for public purposes, it partakes of the nature of a tax. Because it is levied upon property in proportion to the benefits received, there result some principles differing from those of general taxation. Constituting a branch of the power of taxation, special assessments must conform to the limitations imposed upon the taxing power, to the extent that (1) they must be for the public welfare, (2) they must be imposed only for public purposes, (3) they must be levied by due

process of law; and they must conform to requirements of the federal Constitution, (4) forbidding the taking of property without just compensation, (5) not permitting the impairment of contracts, and (6) guaranteeing equal privileges in a state to citizens of other states. They differ from taxes in so far that (7) the power to levy them may be delegated by the Legislature to municipalities, and (8) they are not to be imposed upon all the citizens in proportion to the property valuation of each, even where there is a constitutional provision requiring equality and uniformity in taxation. Other restrictions may be imposed by the state Constitution; but unless thus expressly prohibited, the power of the state Legislature is supreme and its discretion is conclusive.

2. *Limitations Explained.*—The first requirement just mentioned (they must be for the general welfare) follows one of the fundamental principles of the purpose of government as stated in the federal Constitution, and is a question for the Legislature only to determine. The second necessity (a public purpose) is also a legislative question, but one in which the courts may act if its requirements are disregarded by the Legislature. The third essential is administered in a way to guard private rights especially, and is covered by the following subdivision: "Procedure in Their Levy and Collection." The fourth requisite is secured by the fact that the fundamental principle of such assessments considers them as levied to pay for the special benefits which accrue over and above the benefits to the general public. The fifth and sixth needs affect mainly the interest of bondholders, as discussed under the title "The Validity of Improvement Bonds." The seventh characteristic is constantly and universally exercised by state Legislatures in their paramount authority; and the eighth principle is rejected by only Tennessee and Arkansas[1].

Procedure in Their Levy and Collection.

3. *Flexibility of Method.*—The adaptability and justness of the principle involved is indicated by the flexibility in the method of procedure that the system permits. Not only is the special assessment laid in proportion to the benefit received, but the latitude of methods pursued in its levy and collection permits of a ready adaptation to the special conditions and needs of each case.

4. *Legislative Authority.*—Although the Legislature is the supreme power, it delegates its authority more or less completely and very specifically to the municipality by a charter or by general laws under which the city acts. In every case these specific legal provisions govern the mode of operation, and are to be strictly followed in each step of the procedure.

[1]See p. 342.

5. Initiative Proceedings.—Sometimes the city council or an executive board, such as a board of public works, has authority to proceed at once; but more frequently there is necessary some antecedent action, such as a petition of a portion or a majority of the property-owners affected[1]; or a favorable vote; or a remonstance from a certain proportion of the interests affected may postpone action for a definite time, or otherwise influence the proceeding. To facilitate such action by the interests affected, notice of the proposed improvement is generally given before making the assessment, and usually opportunity for a hearing for and against the proposition is furnished by the body having jurisdiction, either before or after the apportionment is made.

6. Distributing the Assessment.—Assessing the cost upon the property affected is the work of assessors or commissioners. Generally the assessors are especially appointed for the purpose by a court or some other specified body, but frequently certain officials serve. It is usual for the extent of the assessment district to be prescribed by the municipal body mentioned in Section 5, but occasionally the Legislature prescribes it; otherwise the assessors generally fix its limits. Much the same course of action obtains in fixing the rule by which the assessment is apportioned; but whether it is by area, by the front foot, or otherwise, the method is followed which is supposed to distribute the expense most nearly in proportion to the benefits received. Sometimes the amount that can be assessed is limited by law, either by a provision that the assessment shall not exceed a certain percentage of the assessed valuation, or the proportion to be charged upon the property may be fixed and the city pay the balance, or the maximum charge may be specified per foot or otherwise, or limitations may be effected by other restrictive provisions.

7. *Collecting the Assessment.*—The assessment becomes a definite charge upon property when the procedure of Section 6 is authenticated and confirmed by the body which took the initiative proceedings or the one which appointed the assessors, and it is usually declared by statute to become then a lien upon the property. The special assessment is generally collected by the city officials, either as ordinary taxes are collected or by a prescribed special process; but in some cities the assessment bills are given to the contractor in payment for his work, and are collected by him. If necessary, the collection of the assessment is enforced, when it becomes delinquent, under specific legislation permitting a sale of the lands, or by some of the processes adapted from the method of collecting general taxes.

8. Remedies of the Tax-Payer.—While the ordinary legal remedies are always open to the tax-payer for testing the legality and justice of an assessment, and furnishing his ultimate remedy, yet the procedure just outlined contains his usual safeguards in giving him one or several

[1]Exhibit, Chapter vii, Section 6.

of the following privileges: a voice and a power in the initiative, a hearing before the administrative body, a review by the assessing board, or an appeal to some court or to the confirming board. Where "these laws provide for a mode of confirming or contesting the charge * * * with such notice to the person, or such proceeding in regard to the property as is appropriate to the nature of the case, the judgment in such proceedings cannot be said to deprive the owner of his property 'without due process of law'";[1] as such provisions specifying details of procedure are within the unquestionable and unquestioned authority of the Legislature, and so, when formulated, are a part of the law of the land.

9. Prescribed Procedure Must Be Strictly Followed.—Whatever be the precise character and nature of each of the successive steps prescribed, in any case, for making a special assessment, the fact remains that usually such statement of procedure, in the charter or general laws, is very complete and explicit.[2] In any case it is necessary that the requirements so specified be exactly followed to secure legality in the assessment. Unimportant details would not constitute decisive irregularities; but any departure from the prescribed procedure at all material or important is always held to invalidate.

Interpretation and Judicial Decisions.

10. Power of Legislature Paramount.—In matters of taxation the authority of the Legislature, paramount within its proper limitations, permits such a delegation of authority to the municipality as it deems best. Such delegated power may be extensive or meagre, generous or restricted in the quality of its provisions, adequate to the city's needs or most circumscribed, efficient and salutary or unwieldy and insufficient. Not only this, but such authority may be subsequently enlarged or restricted, confirmed or recalled, modified or resumed by the Legislature whenever it deems it wise and in whatever way, subject to the restrictions given in Section 1. Indeed many customary provisions, *e. g.*, a favorable vote of the people before proceeding in certain cases, are discretionary and may be omitted if the legislative power sees fit. Where they are not strictly of exclusively local concern the Legislature may even coerce an unwilling municipality into making needed public improvements, *e. g.*, requiring a city to lay out a street without its consent or vote, and obliging it to issue bonds in payment;[3] in short, exercising "directly within the locality any or all of the powers usually committed to a municipality."[4] Where the state has special, restrictive constitutional provisions, a local improvement cannot be so ordered and assessed.[5]

[1] 96 U. S., 97, 105.
[2] Notice details of Exhibit.
[3] 46 N. Y., 401.
[4] 91 U. S., 540, 545.
[5] 51 Cal., 15.

11. The Grant of Power Must Be Clear, and Be Strictly Followed.—Confining the consideration more closely to special assessments, "it may be considered a point fully settled * * * that the Legislature has the constitutional power to confer on municipal corporations the power of assessing the cost of local improvements upon the property benefited. * * * It becomes a mere question of expediency of which the Legislature are the competent and exclusive judges, and not of right."[1] There being, then, no question of the authority of the state to confer, either with or without restriction or limitation[2] except constitutional, there comes the question of the grant of this power. It is essential that authority to levy special assessments must be clearly and plainly given by the state, or implied by being absolutely necessary to the exercise of a power expressly granted, as otherwise the city will have no such power; no equivocal or doubtful implication will suffice. Similarly the extent of the power is limited to that clearly given, and the mode of exercising it, as prescribed, must be carefully followed.[3] The question is, then, has the state delegated the power to make special assessments to the city, and with what fulness and what restrictions?

12. Legislature Must Not Exceed its Authority.—Although it has been frequently held that the legislative judgment shall stand almost to extremes, the courts have lately shown a disposition to scrutinize more carefully the powers granted and the effect of their exercise, holding them more closely to the limitations before given.[4] As where the Legislature declares that the total cost of improvement, without regard to whether such cost exceeds the benefit conferred or not, can be assessed upon property, the courts are becoming inclined to consider such provisions arbitrary and unjust, as far as the excess above benefits is concerned, declaring that such excess must be borne by general taxation;[5] and several courts have recently held that, where the provisions of the law were of such a nature as to make it legally impossible to apportion the burden with substantial equality and justice, it is not a lawful exercise of legislative power.[6]

13. Power of the Municipality is Restricted.—The construction of the powers as granted by the Legislature[7] furnishes the measure of power that may be exercised by the municipality. Therefore, while the state's power is limited only by the restrictions given at the beginning, that of the city extends only to the powers plainly conferred upon it by charter or statute. Neither can the municipality confer upon other bodies powers which were intended for it to exercise.[8] Nor can charter requirements be varied by ordinances, as, when a city

[1] 65 Pa., 146, 150.
[2] 7 Bush (Ky.), 667.
[3] 3 Wash., 84.
[4] See Sections 1 and
[5] See Section 16.
[6] 34 Ill., 203.
[7] See Section 11.
[8] 105 Cal., 244.

charter makes the determination of the size of a city sewer a duty of the city council, the exercise of this function by the city engineer invalidates the assessment.[1] Nor can a city ratify proceedings which were illegal in the first place, so as to make them valid; the power of legalizing by curative legislation exists only in the state Legislature.[2] But for a city that began work on a sewer under a defective ordinance which was replaced by another ordinance curing the defect while construction was progressing, it was held that the resulting tax bill was valid.[3] A city may, as a rule, alter or change its system of sewerage if for the public good;[4] but where an act of the Legislature contemplates one main with its laterals for a district, the commissioners have no right to substitute a system providing for two mains instead.[5] Authority to make local improvements by special assessment does not permit assessing the cost of street sprinkling;[6] but it may be so assessed when statute permits.[7] A city ordinance providing for the assessment upon property owners of the expense of street sprinkling and sweeping is held valid under the police power.[8]

14 Incidental Powers.—A given power to pave includes power to do all that is necessary, fitting or customary for paving; hence, trimming and guttering have been held to be incident to macadamizing;[9] similarly, grading, curbing, etc , are incidental to paving, and so may be included in the assessment.[10] Further, charter authority to a city to repair and keep in order its streets is sufficient to empower it to construct drains and sewers without more special authority; and when constructed, the municipality will incidentally possess power to pass ordinances regulating their use.[11] A city authorized to construct sewers cannot be restrained from removing a street railway from the street, if that is necessary.[12] A city that permitted a gas company (under contract based on a valid consideration) to lay its pipes in the streets does not thereby lose its power to lower the grade of the streets subsequently and to remove, if necessary, the exposed and obstructive gas pipes as nuisances. The municipality and not a court must judge the necessity of exercising the power to grade and improve its streets, and a city cannot alienate such power when vested in it by the Legislature.[13]

15. Improvement Must be of Special Local Benefit.—Although decisions are numerous, logical and spread over most of the time that local assessments have obtained, holding to the fundamental doctrine that to pay for local improvements entirely from the general fund would

[1] 52 Mo., 133.
[2] 36 Cal., 239.
[3] 52 Mo., 348.
[4] 38 La. Ann., 308.
[5] 37 N. J. L., 51.
[6] 149 Ill., 310.
[7] 41 N. E. Rep. (Ind.), 1 045.
[8] 130 Ind., 382.
[9] 22 Iowa, 246.
[10] 2 Mich., 560.
[11] 28 Conn., 363.
[12] 48 Md., 168.
[13] 88 Va., 810.

be inequitable,[1] yet it must be remembered that the converse holds true, such assessments being generally held unlawful when there is no special benefit derived by the property in question above the general benefit received by the community at large. To make the special assessment valid, its purpose and effect must be to benefit the property in the vicinity of the improvement, and not the public generally. Of the cases upholding this well-established principle, one held it beyond the power of the Legislature to require the owners of farm lands lying within one mile of a certain public highway to pay for its improvement by special assessments, because it was a general public benefit.[2] Again, a general power to grade and pave does not permit a city to grade and pave a public street for the general benefit, and assess the total cost upon the abutting property.[3] "Local assessments can only be constitutional when imposed to pay for local improvements clearly conferring special benefits on the properties assessed, and to the extent of those benefits. They cannot be so imposed when the improvement is either expressed or appears to be for general public benefit."[4] Again, "an ordinance providing for a street improvement, the estimated cost of which exceeded the value of the property to be charged therewith, and which did not enhance the value of the said property to anything like the cost of said improvement, is an unreasonable exercise of the taxing power."[5] Where it clearly appears that the property is in no way benefited by the alleged improvement, the assessment is unconstitutional; its "enforcement * * * would be taking property without due process of law."[6]

16. Assessment in Proportion to Benefits.—The Legislature has a wide discretion in providing the manner of determining benefits, but whatever method is fixed upon must conform to the principle of payment according to benefits received.[7] "Burdens in excess of benefits * * * must be borne by general taxation."[8] While this principle of payment according to benefits is fundamental, it is not necessary that it be true for every individual case. If it holds broadly true for the special assessment as a whole, the fact that there may be isolated exceptions will not invalidate the assessment. Occasional exceptions, perhaps working hardship, cannot be always provided against; and its general justice upholds it.[9] The same is true where an assessment district may not include just the property especially benefited; of course that must be the intention and the general rule, but individual exceptions will not invalidate.[10] But the city cannot purposely, as by contract, exempt property (that would be

[1] 10 La. Ann., 57.
[2] 69 Pa., 352.
[3] 48 Md., 198.
[4] 65 Pa., 146, 157.
[5] 33 S. W. Rep. (Mo.), 182.
[6] 25 Ore., 229, 240.
[7] Exhibit, Chapter VII, Sections 2 and 6.
[8] 36 N. J. L., 291.
[9] 12 Colo., 593.
[10] 35 Mich., 155.

subject) from the payment of its proper proportion.[1] A lot, though below the grade of a sewer, has to pay its portion of the assessment, as it will be benefited whenever it shall be filled.[2]

17. New Jersey Insolvent Cities.—The principle that the assessment upon property must not exceed its exceptional benefits is strongly upheld in the famous "Agens" case,[3] which resulted in involving several New Jersey cities in insolvency. In these cities, notably in Elizabeth, miles of pavement were laid in the suburbs and in outlying districts that were not built up, and the cost was assessed upon abutting property, city bonds having meanwhile been issued for immediate payment of the improvements. Lawsuits and delays over the collection of the assessment resulted, and property values declined to such an extent that often it was worth only a fraction of the amount levied. Then came the "Agens" decision just noted, preventing the cities from even partially reimbursing themselves for the improvement bonds issued in anticipation of the collection of the special assessments now decreed invalid. The New Jersey Legislature passed laws for relaying these assessments in a constitutional manner, but by this time the value of the property involved had decreased to so much greater an extent that the remedy was ineffectual. The burden was too great to be borne, city officials resigned to prevent suits against the municipalities involved, and for months the collection of taxes, and the usual city acts and official duties dependent upon taxation, practically ceased. Finally the State passed the Incumbered Cities Relief Acts, which enabled them, after years of the greatest disturbance, to compromise their debts and resume their proper functions.

18. Equality and Uniformity Interpreted.—Though special assessments need not be equal and uniform in the sense that general taxes are required to be,[4] yet so far as interpreted that phrase has been generally held to mean that the special assessment must be apportioned by some uniform principle securing an equality of burden as measured by the standard of benefits.[5] Thus, while the city charter of Covington, Ky., required in the initiative a majority petition for all streets, except its main thoroughfare, it was held that the taxation requirement of uniformity applied to special assessments to the extent that a majority petition must be secured for that thoroughfare also, although the city charter expressly stated that it could be paved, and the cost assessed without any petition therefor, but by unanimous vote of the council.[6] So, too, while decisions favor first the constitutionality, and then the unconstitutionality of the method requiring a property owner to pay the exact and whole expense of the particular part of the improvement in front of his own

[1] 69 Tex., 180.
[2] 7 Cush. (Mass.), 277.
[3] 37 N. J. L., 415.
[4] 94 Ky., 396.
[5] 51 Cal., 15.
[6] 8 Bush. (Ky.), 493.

property, the safer opinion seems to be that such a procedure lacks the uniformity as well as the apportionment required.[1]

19. Principle of Apportionment.—The apportionment of the assessment upon the property affected may be left to the assessors, but it is more generally placed by some definite method formulated either by the Legislature or by the city council, the underlying principle still being assessment in proportion to benefits. If left to the assessors it is easy to apply, in any case, the mode that seems most effectively to conform to the requirement just mentioned; but if by some formulated method, it is equally true that the principle of benefits should control the determination of the method, so that the formulated rule will lead to practically the same result. "The only safe and practicable course, and the one which will do equal justice to all parties, is to consider what will be the influence of the proposed improvement on the market value of the property; what the property is now fairly worth in the market, and what will be its value when the improvement is made. * * * There can be no justification for any proceeding which charges the land with an assessment greater than the benefits. It is a plain case of appropriating private property to public uses without compensation."[2] Where the law provides a specific mode of apportionment it must be carefully followed; as, where the statute provides for assessment on "lands fronting on the street improved in proportion to the benefits upon the property," an assessment arbitrarily proportioned to linear feet of frontage is invalid.[3] The report of the assessors must show distinctly that the assessment is in proportion to benefits; it could not be permitted that a jurisdictional document of this nature should speak in ambiguous terms.[4] A report of the majority is the report of the assessors.[5]

20. Details of Apportionment.—Of the formulated methods of apportioning the assessment, mentioned in the last preceding section, those by amount of area and by extent of linear frontage are the most used. These methods, when prescribed, have been upheld by the courts except when lots were of such various size, depth or situation as to defeat practically the benefit requirement in the frontage rule; or when lots were so different in position or condition as to work practically the same injustice under the area rule. Under the latter method a special assessment levied according to area, but with the corner lots required to pay 25% additional, was declared unconstitutional.[6] On the other hand, when lands remote and near were assessed equally it was held so arbitrary and so opposed to the benefit principle as to make it unlawful;[7] but a similar assessment was held constitutional under the police power.[8] In the case of the frontage rule,

[1] 145 Ill., 313.
[2] Cooley on Taxation, p. 459.
[3] 9 Wash., 466.
[4] 30 Mich., 24.
[5] 63 Barb. (N. Y.), 572.
[6] 12 Bush (Ky.), 570.
[7] 35 Mich., 162.
[8] 10 Colo., 112.

the same underlying principle (that of benefit, of which this method is, or should be, but an index) is again the test, and where followed the assessment is upheld;[1] but cases are not rare where courts have declared them illegal simply because they violate that principle.[2] Lots separated from the improved street by a railroad running parallel to it cannot be taken as fronting upon the street; and an assessment upon them by the frontage rule will not hold.[3] Corner lots, having thus a double frontage, may be properly assessed the total amount determined by their linear extent on both streets, where both streets are improved;[4] though the usual way is to abate a certain percentage of the assessment on one front,[5] and there are cases where, when a corner lot has its longer dimension abutting on the improved street and its shorter dimension on another, it was held that the lot should be deemed as fronting on the improvement only to the extent of its shorter dimension;[6] but the usual rule in such cases is that the frontage of a corner lot is "its frontage upon the improvement," although the condition of the lot and its improvements make its proper front (as usually considered in other connections) on the cross street.[7] Further, charging benefits by frontage, and so assessing, could apply only to cities and towns where the density of population and the small size of lots make this a reasonably certain mode of arriving at the true result; to apply it to the country and farm lands would lead to inequality and injustice.[8] It is customary to provide that street railways shall pay for that part of the improvement covered by their tracks;[9] and where such paving is made the duty of the street railway, its cost cannot be included in the assessment upon private property.[10]

21. Principles Affecting the Validity of the Levy.—The confirmation of the assessment[11] by the municipal or judicial body having such authority is the definite action which transforms the preliminary process into an accomplished fact, definite, conclusive and binding. If a city council refuses to act, it may be compelled to do so by mandamus.[12] A supreme essential in the preliminary procedure is that notice to those to be assessed must be provided for at some stage of the proceeding. "The law must require notice to them and give them the right to a hearing and an opportunity to be heard. * * * The Legislature may prescribe the kind of notice and the mode in which it shall be given, but it cannot dispense with all notice."[13] Of course, these preliminary steps have their rules of procedure, specified gener-

[1] 56 N. J. L., 119.
[2] 96 Ga., 381.
[3] 35 Pa. St., 75.
[4] 32 Iowa, 271.
[5] 140 Ill., 402.
[6] 50 Ohio, 471.
[7] 131 Mo., 19.
[8] 69 Pa., 352.
[9] 97 Cal., 305.
[10] 144 Ill., 446.
[11] See Sections 6 and 7.
[12] 42 Ark., 152.
[13] 74 N. Y., 183, 188.

ally by charter, that must be faithfully observed,[1] and a decision or certificate of the proper authorities that such has been done is *prima facie* evidence of compliance, but when not made final and conclusive by statute,[2] it may be disproved;[3] the lack of such substantial compliance with the specified procedure makes the whole proceeding void. "The power of taxation, especially for local improvements, is the highest attribute of sovereignty. * * * Such statutes must be construed with the greatest strictness."[4] But in the absence of fraud or mistake the administrative acts and discretionary decisions of this board are authoritative and final; and "the decision of the board * * * is conclusive."[5] It is this confirmation and levy that definitely brings the property owner into the legal relation, the city previously acting and contracting for the improvement, although private property is to pay for it. Such an assessment is not subject to counterclaim or set-off.[6] Although the property owners are not parties they may defend against paying the assessment if there has not been a substantial performance of the contract; as, where only a part of the improvement has been made, abutting property owners cannot be compelled to pay, even when an allowance is made for the work not done.[7] There may also be a successful defence if there is no possible benefit to the property; as where the owner of a corner lot had applied to the city council for the use of water and had paid for the pipe laid in consequence along one front of his property, he was held not liable to assessment for pipe afterward laid along the other front without his petition.[8] If a contractor is violating his contract by doing the paving in an imperfect manner, a landowner (if the city authorities unreasonably refuse to take action) may secure an injunction restraining the council from paying for such work, where the landowner is liable to assessment for the improvement;[9] or such landowner may maintain suit to enjoin when the work is being done under an illegal contract;[10] or he may attack the assessment if it is void.[11] On the other hand, defective work will not offer a valid defense, when the assessment becomes due, against paying it; the proper city officials decide this question. The taxpayer having failed to avail himself of his opportunity to have such charge reviewed in the regular course provided by law, he cannot now question the approval of the work by the superintendent, which he had acquiesced in.[12] Nor will alleged irregularities and failure to comply with minor statutory requirements invalidate, unless facts are given showing such irregularities.[13] Neither will the fact that a property owner, as-

[1] Exhibit, Chapter vii, Sections 9, 11 and 12.
[2] 62 N. Y., 457.
[3] 4 Hill (N. Y.), 76.
[4] 59 Ark., 344, 362.
[5] 33 Minn., 295, 304.
[6] 39 Cal., 389.
[7] 14 Bush (Ky.), 24.
[8] 86 Pa. St., 498.
[9] 48 N. J. Eq., 275.
[10] 137 Pa. St., 548.
[11] 43 N. E. Rep. (N. Y.), 632.
[12] 29 Cal., 75.
[13] 81 Wis., 326.

sessed for the construction of a public sewer, had previously constructed a private sewer (sufficient for the needs of his property and with the assent of the city) relieve him from such assessment, even when a municipal building had connected with the private sewer.[1] As a rule, a municipal corporation cannot exercise its powers beyond its own limits;[2] but when it is necessary to extend a sewer beyond such limits in order to obtain an outlet, a special assessment to include this expense will stand.[3]

22. *Time of Levying and Methods of Collecting.*—In most cities the assessment is levied after the cost of the improvement is known, the city meanwhile advancing funds (if necessary) for the prosecution of the work, and securing reimbursement upon the collection of the assessment. Where there is no legal difficulty preventing it, this is the better way, as it avoids complications which have troubled many cities, resulting in their abandonment of the system of making the assessment upon the basis of estimated cost. Such estimated assessment was generally found to be either too great or too small, necessitating either the return of an excess to the property owners or a reassessment to supply the deficiency. While such anticipatory assessment, rebate or reassessment has each been judicially upheld, the consequent difficulties, complications and hardships have caused its abandonment wherever possible. It is quite customary to provide that the contractor shall depend solely upon the proceeds of the assessment for his compensation; and this holds,[4] unless the city makes itself liable by reason of default or negligence in the proceedings.[5] Many cities, instead of anticipating the collection by the issue of bonds or otherwise, pay the contractor by turning over to him the special assessment bills. The contractor collects these bills, if necessary enforcing their payment, in his own favor, by the prescribed legal procedure.[6]

23. *Enforcement of the Collection.*—It is customary to make a special assessment a lien upon the property assessed, to be enforced by sale or other specified means if necessary. But such assessments are not liens unless they are plainly made so by the charter, or unless the city is unmistakably authorized by the Legislature to declare them liens. But lands may be sold for delinquent assessment where there is plain authority so to collect.[7] Assessments are also frequently declared to be a personal charge against the land-owner, and have been often enforced as such.[8] Yet it is difficult to reconcile this proceeding with the principle of benefits underlying the whole system of special assessments; and there are decisions sustaining this objection.[9]

[1] 168 Pa., 105.
[2] 154 Ill., 23.
[3] 138 Ill., 295.
[4] 16 Wis., 271.
[5] 1 Met. (Ky.), 339.
[6] 31 Cal., 240.
[7] 42 Neb., 186.
[8] 79 Iowa, 645.
[9] 50 Mo., 525.

Whatever mode of enforcing the collection is specified, it is to be faithfully followed, even to the exclusion of others; yet, where there is authority to assess, some adequate remedy cannot be denied. Where the mode of collection is not specified, the assessment may be enforced by due course of judicial proceedings, but not by distress and sale of the property unless that is permitted by express grant or is necessarily implied or absolutely essential to the declared purposes.[1] If money is paid for an assessment, void on the face of the record for want of jurisdiction, it may be recovered in an action at law; but for an assessment otherwise illegal it cannot be recovered until the assessment is set aside by judgment of court, and such decree in one case will not vacate other assessments for the same improvement, but judgment must be secured for each.[2]

24. Classes of Property Exempt.—Federal, state or municipal property is not subject to special assessment without definite authority to so assess. For example, school property has been held not liable to assessment for a street improvement,[3] but the city may be held for the amount;[4] nor is a public square subject to special assessment without plain statute authority;[5] nor, without such provision, are streets crossing the improved street subject to assessment as abutting property.[6] Such charges upon the property of religious societies (where they are exempted by the state from taxation) have usually been held valid,[7] the reasoning being that special assessments are not taxes within the meaning of such exemption laws; though in one case the contrary rule was upheld,[8] but the state has since (1891) reversed its decision.[9] Further, a provision in the charter of a corporation exempting its property "from all taxation by state or local laws for any purpose whatsoever," does not exempt it from local assessments.[10] Railroads, having a quasi-public character, involve the question with more uncertainty. In one case, where the federal government had important interests and definite connection with the railroad, it was decided there was no power to tax.[11] In another, where the direct benefits to the railroad (from paving) were uncertain, it was held that the roadbed was not subject to the special assessment.[12] Yet the better principle and the weight of judicial opinion holds that such property is liable for its proportion of the cost of a public improvement, its quasi-public character securing for it no exemption.[13] The fact that the property affected is a homestead does not exempt it from assessment.[14]

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[1] 25 Iowa, 163.
[2] 130 N. Y., 401.
[3] 48 Ohio St., 83.
[4] 35 S. W. Rep. (Ky.), 625.
[5] 115 Mo., 557.
[6] 150 Ill., 530.
[7] 8 Bush (Ky.), 508.
[8] 76 Ga., 181.
[9] 86 Ga., 730.
[10] 92 Ky., 89.
[11] 18 Wall. (U. S.), 5.
[12] 138 Pa., 375.
[13] 35 Atl. Rep. (Pa.), 610.
[14] 97 Cal., 305.

25. Reassessments Valid.—The power to impose special assessments is a continuing one, unless otherwise specified. It is not exhausted, in relation to any certain piece of property, when one assessment has been made upon it. As where a sewer proved to be a nuisance as at first made, necessitating its continuation to a river, this situation was held to justify a second assessment upon the same property.[1] There may also be a reassessment upon the same property if the first has proved insufficient, even when there is a final decree of the court forbidding the collection of the original assessment.[2] A void assessment does not preclude a subsequent valid one.[3] But where there was a provision in the state constitution providing that no law retrospective in its operation should be passed, an act of the legislature authorizing a reassessment was held void under this provision.[4]

26. Reassessments for Renewal.—When the subject of reassessment for the renewal of a public improvement is considered, there is found less unanimity in the decisions. The prevailing opinion remains favorable to assess property again to pay for a renewal, either without restriction, as at first,[5] or under restrictions, such as that of the New York City charter of 1873, providing that repaving can be assessed only when the improvement has been petitioned for by a majority of the property owners.[6] The only state definitely holding views adverse to such reassessment is Pennsylvania, whose policy had its inception about the year 1870. In the judicial opinion then delivered the question raised was the legality of assessing the cost of repaving Broad Street, Philadelphia, with Nicholson pavement when the expense of paving it with cobble-stone had been previously assessed upon the same property. The decision was opposed to the legality of the proceeding, on the ground that "when a street is opened and paved, thus assimilated with the rest of the city and made a part of it, all the particular and especial benefits to the locality derived from such improvements have been received and enjoyed".[7] The principle thus established has been frequently reaffirmed by the Pennsylvania courts, and this remains the policy of the state, even to the extent of not permitting the assessment of cost of paving with asphalt when the same street had been previously macadamized at no expense to the property now levied upon.[8] The latest decision holds the principle applicable to reassessment for sewer construction as well. The following are extracts from this recent decree: "A sewer once constructed gives to the property owner every benefit and advantage that a sewer gives him over the general public. The benefits thereafter derived, either from repairing or reconstructing the same, are only such as he enjoys in common with the public. * * *

1 44 N. J. L., 347.
2 34 N. J. L., 236.
3 79 Md., 469.
4 52 Mo., 133.
5 7 Bush (Ky.), 667.
6 77 N. Y., 523.
7 65 Pa., 146, 156.
8 151 Pa., 172.

There can (therefore) be no doubt that after a public sewer is once constructed, it must be maintained and repaired at the expense of the public. The question we are discussing, as applicable to paved streets, has been thoroughly settled by our Supreme Court, who have repeatedly held that the payment of the costs of the original paving out of the city funds was immaterial, and did not change the principle that a street once paved could not be repaved at the expense of the abutting property holders."[1]

27. *Repairs Paid for by City; Maintenance Clauses.*—Concerning the maintenance and repair of public improvements, decisions seem unanimously to uphold such work at the expense of the municipality. When an improvement is once made, the city must keep it in repair.[2] "Repairing streets is as much a part of the ordinary duties of the municipality—for the general good—as cleaning, watching and lighting. It would lead to monstrous inequality should such general expenses be provided for by local assessments."[3] Such being the rule, there arises the important question of the validity of maintenance clauses of contracts for public improvements; and the query thus raised is whether such a provision throws the cost of repairs upon the property paying the assessment, contrary to the established rule. The decision of this question is uncertain, some opinions being favorable and some adverse. In Kentucky (1896) it was held that, under the authority to assess the cost of paving, a provision for maintenance for five years at the contractor's expense cannot stand, "because such provision increases the burden of the property holders by adding the cost of repairs, for which the city itself is liable"; but the assessments may be enforced to the extent of the actual cost of the improvement, if maintenance provision is separable.[4] California (1893) decided that a contract requiring that the pavement should be kept in repair at the contractor's expense, for five years, vitiates the assessment even if he can testify that this requirement did not enhance his bid. "It was suggested that this requirement was intended as a guaranty that the work should be so well done * * * as not to require repairs"; but "the lot owner cannot be made to pay for such guaranty."[5] New York, in 1890, also decided a similar case adversely;[6] but, in 1892, its decision was that where the contract provided that the work should be done "in such a substantial manner that no repairs should be required for five years," and in case repairs became necessary the contractor should make them without further charge, this provision is to be considered a mere "guarantee of the quality of the work" and so valid.[7] The Missouri Supreme Court, too, although on this particular question at first dividing equally in their opinion (1895),[8]

[1] *Engineering Record*, Vol. xxxv, p. 178.
[2] 16 N. Y. Supp., 97.
[3] 65 Pa., 146, 156.
[4] 35 S. W. Rep. (Ky.), 1125.
[5] 98 Cal., 10, 12.
[6] 56 Hun (N. Y.), 81.
[7] 66 Hun (N. Y.), 179.
[8] 131 Mo., 27.

yet in a later case a majority holds a maintenance clause valid as really being "but an agreement to construct in the first instance a pavement good for five years."[1] Illinois by a late decision[2] (1896) strongly approves the same position, upholding a five-year maintenance by considering it "merely a warranty or guaranty of the fitness of the material for the use intended."[3]

28. Limitation to a Fixed Percentage of the Tax Valuation of Property; Default in Payments.—Frequently there is a legal provision that a special assessment cannot, in any given case, exceed a certain percentage of the tax valuation of the property. In the absence of such requirement, its validity is not affected by the fact that the assessment is greater than the tax valuation of the lots.[4] When there occurs such a limitation, the assessment is "void as to the excess only."[5] Where the law provides that the assessment on a lot shall not exceed one-half its tax valuation, it was held that the lot was liable to this maximum limit for each assessed work, although it had been assessed for other work previously in the same year.[6] Probably the failure at times to collect, in many cities, a considerable proportion of local assessments (which were depended upon to satisfy city bonds issued for the improvements) furnishes the best reason for a restriction in the amount that can be levied. The cities of New York and Brooklyn are pertinent examples. In the former, under the rule of the "Tweed ring," extravagant and unnecessary improvements were made, apparently for the purpose of personal gain to political favorites contracting. Assessments beyond all reasonableness and justice were levied upon property, until, under the excessive burden, default in the payment of assessments due amounted (according to Rosewater)[7] to nearly $8 500 000 in 1880. The same reference gives the deficit of Brooklyn, for the same date, as over $5 500 000, which the city comptroller states resulted from "fraudulent and unnecessary local improvements forced upon the owners at a time when labor and material brought the highest prices; * * * when contractors and many city officials became rich, while property owners and the city became poor." Among other municipalities wrestling with similar defaults, the condition of the cities mentioned in Section 17 furnishes examples of the same difficulty even more serious in its results.

The Validity of Improvement Bonds.

29. Import and Governing Principles.—This subject, vital to investors, is of more than passing interest to the engineer, as frequently the

[1] 38 S. W. Rep. (Mo.), 458.
[2] 161 Ill., 16, 20.
[3] See, also, the last section of Chapter vii of Exhibit.
[4] 74 N. Y., 95.
[5] 55 Ark., 148, 149.
[6] 99 Cal., 294.
[7] Columbia College Studies in History, Economics and Public Law, 2, 3, pp. 73-78.

successful prosecution of public works with which he is connected depends directly upon the validity of bonds issued for their construction. Yet the subject can here be considered only in a most general way because in its entirety it extends over so broad a field and in its details through such extensive ramifications and intricacies of general law and special enactment that it would be very inappropriate to this paper. Considering the governing principles, it may be said in the first place that the constitutional limitations given in Section 1 (except the fourth and eighth) apply here with equal force; in fact, the fifth and sixth restrictions are especially applicable to this question, safeguarding private rights where possibly selfish interest might otherwise inflict injustice. For example, the constitutional clause providing that no "law impairing the obligation of contracts" shall be passed, disables a city from retaining out of the interest of municipal bonds, as it becomes due, a tax levied by the city on such debt.[1] And the further provision against abridging the "privileges and immunities of citizens" was held to debar a discriminating tax against non-residents of a state.[2] Concerning the issue of such bonds, the essential elements already given[3] as governing valid procedure in inaugurating public improvements hold also, in general, for the legal issue of improvement bonds. The authority to issue them must be expressly granted, necessarily implied, or absolutely essential to the purposes of the municipality as declared by the Legislature; and the procedure specified and the restrictions imposed must be faithfully observed.

30. Validation, Recitals and Irregularities.—The municipality has no power to validate, but the Legislature may legalize, municipal bonds (that were invalid when issued) by its sanction[4] or even by recognition made by implication.[5] A recital on the bonds, declaring that conditions precedent have been complied with, will hold the city[6] when made by officers authorized to so certify,[7] and when the holder of the bonds (purchased by him for a valuable consideration before due) has no notice of irregularity either from its appearing on the face of the bonds[8] or from some public record with notice of which he is affected,[9] even when irregularities exist; but an issue, illegal because of such irregularities, may be ratified by the municipality if it receives and keeps the proceeds of the sale,[10] or if it submits to taxation to pay the obligation,[11] thus holding the city to the debt. Generally, however, where irregularities occur, the municipality can make a successful defence against payment, as the holders of bonds

[1] 96 U. S., 432.
[2] 12 Wall. (U. S.), 418.
[3] See Sections 11 and 13.
[4] 112 U. S., 261.
[5] 5 Wall. (U. S.), 194.
[6] 107 U. S., 529.
[7] 92 U. S., 484.
[8] 110 U. S., 162.
[9] 103 U. S., 562.
[10] 94 U. S., 202.
[11] 96 U. S., 675.

are charged with a knowledge of the statutes and other public records under which the bonds are issued[1] and of the powers of the officers issuing them.[2] Furthermore, bonds that are absolutely void (because violating the constitution or statute, or for entire absence of power to issue) have no validity even in the hands of those purchasing in good faith;[3] for example, bonds issued in excess of the statutory limit are absolutely void and cannot be recovered upon.[4]

The foregoing legal discussion has been written with the purpose of stating and illustrating governing legal principles, the apprehension of which is essential to a general discussion of special assessments. This Appendix is, in no sense, an exhaustive treatise extending to details and peculiarities of the different state laws and policies. In any case, then, where specific legal questions arise there should be secured the opinion of legal counsel, and in no investigation is this more necessary than in the difficult and intricate considerations involved in the determination of the validity of improvement bonds. Although legal questions are for lawyers, the legal principles governing special assessment laws and procedure affect so vitally the whole consideration that the interest and value of this discussion to the civil engineer would be much curtailed without their incorporation. Nor, without them, would this paper have the completeness that a monograph on special assessments should have, and which is here especially desirable as the subject seems to have received, heretofore, but scant attention outside of legal books and none at all in engineering literature, considering the subject broadly in theory and practice. While confining the legal part of the discussion to governing principles, it has been the endeavor to make it as adequate and compactly complete as practicable. To this end many standard legal works have been consulted, the most important of which are "Dillon's Municipal Corporations," "Cooley on Taxation," and "Beach on Public Corporations." These, with the almost endless state and federal Supreme Court reports, furnish the authorities to whose profound research the author offers acknowledgment of substantial aid.

EXHIBIT.

The following transcript is from the Charter of the City of Milwaukee, 1895. It was originally framed in 1874, but is modified by whatever amendments have been passed since. It thus has been proved by the experience of more than a score of years and per-

[1] 147 U. S., 230.
[2] 111 U. S., 83.
[3] 105 U. S., 667.
[4] 102 U. S., 278.

fected as has been found desirable. The author has labored (in the "Present Practice of Fifty Cities" and "Procedure in Their Levy and Collection," especially), under the necessity of giving methods and principles in the most general form; and it is believed that it will add definiteness and interest to include pertinent paragraphs giving exactly the details of procedure in a typical case. The provisions of the charter of this Wisconsin city are thoroughly illustrative of the practical rules under which its own particular methods are applied; and only those portions that are important and directly pertinent have been incorporated.

CHAPTER VII.—CITY IMPROVEMENTS AND SPECIAL ASSESSMENTS.

Section 1 provides for the general control of the board of public works.

"Section 2. The grading, graveling and planking, macadamizing or paving to the center of any street or alley, and the grading, graveling, macadamizing, planking, paving, sodding and curbing of any sidewalk, and the paving of any gutter, shall be chargeable to and payable by the lots fronting or abutting upon such street, alley or gutter, or fronting, abutting or adjacent to such sidewalk, to the amount which such grading, graveling, macadamizing, planking, paving, sodding and curbing shall be adjudged by said board to benefit such lots. The expense of all such improvements or work across streets at their intersection with streets and alleys, excepting sidewalks, and the expense of all such improvements or work across public grounds, and to the middle of streets and alleys adjacent to public grounds, and the construction of all cross-walks, shall be paid out of the fund of the ward in which such improvements are made or such works are done. After a street, alley or gutter has been constructed to the grade established by the common council, and graveled, planked, paved or macadamized in compliance with the order of the proper city authorities, the expense of maintaining, renewing, repaving, keeping in repair and cleaning such street, alley or gutter, and the pavement or other surface thereof, and of any other subsequent improvement of such street, alley or gutter, shall be paid out of the fund of the ward in which such work is done or such improvement is made; provided, however, that when a street or alley, which has been graveled, planked or macadamized, is ordered to be paved, the expense of such paving shall be chargeable to and payable by the lots fronting or abutting upon such street or alley to the amount which such paving shall be adjudged by said board to benefit such lots as hereinbefore provided for the improvement of a street or alley; and further provided, that when any change in the grade of any street or alley shall be ordered, the expense of cutting or filling incurred by such change of grade shall be chargeable to and paid by the lots fronting or abutting on the street or alley of which the grade shall be so changed; and provided further, that the provisions of this section in relation to the maintaining, renewing, repaving, keeping in repair and cleaning of streets, alleys and gutters shall not apply to the laying, relaying, cleaning, sodding, curbing, repairing or grading of sidewalks."

Sections 3, 4 and 5 concern assessments for canals, docks and dredging.

"Section 6. Whenever the board of public works shall deem it necessary to grade or otherwise improve any street, alley, sidewalk or public ground, or to erect and construct a bridge or viaduct over any ravine in said city of Milwaukee, or to dredge or dock any of the rivers or of the public canals after their first construction, or to abate any nuisance caused by stagnant water in said city, it shall cause to be made an estimate of the cost of such work, and shall put the same on file in its office, and such estimate shall be open to the inspection of any party interested. Thereupon the said board of public works shall make to the common council such recommendation in relation to the proposed work as it may deem proper; and upon the same being adopted by the common council, in whole or in part, the said board may order so much of the work to be done as shall have been adopted, provided that no change of any previously established grade, and no such work, chargeable to lots and parcels of land fronting on or abutting on the same, except the grading, graveling and paving of streets, the paving of gutters and making of sidewalks, and except repairs, and docking and dredging, shall be ordered by resolution, ordinance or otherwise, unless a petition therefor shall first be presented to the common council, signed by residents of said city owning a majority of the feet in front of all the lots fronting upon such proposed improvements, owned by residents of such city, and for that purpose, every person in the actual possession of any lot or parcel of land fronting upon such improvements, under contract in force for the purchase thereof from the owner, shall be held to be a freeholder within the meaning of this act, and to be the owner of such real estate for the purpose of petitioning as the owner thereof. Each person signing such petition as a resident or as the owner of property, shall be required to write after his signature thereto a brief description of the property so owned by him, and of the place of his residence in said city, and to annex thereto an affidavit that he is such resident and owner, and thereupon he shall be taken to be such resident and owner, and such petition shall be as valid and have the same effect as if such person were the owner of such property, and a resident of the city or ward, as stated in his affidavit, although in fact it should thereafter appear that he was not such owner or resident. The common council may order the grading, graveling and paving of streets and alleys, the paving of gutters and the making of sidewalks, without such petition, provided, however, that in the absence of such petition, the resolution of the common council ordering the work shall have been referred by the council to a special committee of five members, no one of whom shall be a resident of the ward or any ward in which the grading, graveling or paving of streets, alleys or gutters, or the making of sidewalks, mentioned in the resolution is proposed to be done, and shall have been reported by such committee to the common council with their recommendation that it be adopted, before a vote shall be taken upon its adoption, and provided such resolution shall declare why it is necessary for the public interest to proceed without such petition, and shall also upon its passage be supported by the votes of three-fourths of all the aldermen elected, and of a majority of the aldermen of the ward or of each ward in which such grading, graveling or paving, or making of sidewalks, is to be done; and provided, further, that no such resolution ordering the grading, graveling or paving of a street or

streets or alley, the paving of gutters or the making of sidewalks, without a petition therefor shall be voted upon or passed at any meeting of the common council held within four weeks from the time of its presentation to the council, and the vote on its passage shall be taken by yeas and nays, and duly entered in the journal of proceedings. Provided further, that whenever the board of public works shall deem it necessary to pave or otherwise improve any street, alley or gutter, or any part of any street, alley or gutter, after the same has been once constructed to the grade established by the common council, and graveled, planked, paved or macadamized, the expense of maintaining, renewing, repairing or repaving whereof shall be a lawful and proper charge against the funds of the ward, in which such street, alley or gutter is situated, and a majority of the residents of the said city of Milwaukee owning a majority of the feet in front of all the lots, fronting on such proposed improvement, owned by residents of such city, shall file a petition with the said board, for any pavement or other improvement deemed by said board to cost more than the estimate made by the board, of the cost of improving said street, alley or gutter, said cost to be determined by said board, it shall be the duty of said board and of the common council to grant the request of such petition, and to proceed to repave, or otherwise improve, said street, alley or gutter, or any part thereof, named in said petition, according to the prayer of the petition, in the same manner as said board and council are now required to maintain, renew, repair or repave any such street, alley or gutter; provided however, that all cost and expense of such repavement, or other improvement, in case of such petition, in excess of the estimated cost of the work, made and filed in the office of the board of public works, for the improvement of said street, alley or gutter, or part thereof, shall be chargeable to, and be made payable by, the lots fronting or abutting upon such street, alley or gutter, or part thereof, such excess to be apportioned by such board to said lots respectively, in proportion to the benefits adjudged by said board to have been conferred by said repavement, or other improvement, in the same manner that the original improvement of streets, alleys and gutters are now lawfully chargeable to, and made payable by such lots; provided further, that the petition for such repavement, or other improvement, required in this act, as a condition of increased cost, shall, as to form, qualification of petitioners and otherwise, conform to the requirements in case of petitions for other work chargeable to lots, and requiring a petition therefor, as provided in said Section 20, Chapter 324, Laws of 1882, of which section this act is in part amendatory."

"Section 7. Before ordering any work to be done by the owners of lots or lands fronting on the same, said board shall view the premises, and consider the amount proposed to be made chargeable against said several lots or pieces of land, and the benefits which, in their opinion, will actually accrue to the owner of the same in consequence of such improvement, and shall assess against the several lots or pieces of lands, or parts of lots or pieces of lands, which they may deem benefited by the proposed improvement, the amount of such benefit which those lots or pieces of land will severally, in the opinion of said board, derive from such improvement when completed in the manner contemplated in the estimate of the cost of such work, made as provided by section six of this chapter, taking into consideration in each case any injury which in the opinion of the board, may result to each lot or piece of land from such improvement; and in case the benefits, in their

opinion, amount to less than the cost of the improvement, the balance shall be paid out of the ward fund of the ward or wards in which such improvement is made; and said board shall endorse their decision and assessment in every case on the estimate of the cost of such improvement filed in their office."

Section 8 provides for damages resulting from the change of an established grade.

"Section 9. As soon as any assessment of benefits or damages, or both, shall be made, as in the preceding sections of this chapter provided, the said board shall give notice to all parties interested, by advertisement for not less than four days in the official papers of the said city, that such assessment has been made and is ready for inspection in its office, and that the same will be open for review and correction by the said board, at its office, for not less than four days after the first publication of such notice during certain hours, not less than two hours of each lay day, and that all persons interested will be heard by said board in objection to such assessment, and generally, in the matter of such review and correction. It shall be sufficient to state in such notice, in brief, what such assessment has been made for, and in what locality, and no further notice or publication of such assessment shall be necessary. During the time mentioned in such notice, the said board shall hear objections and evidence, and they shall have power to review, modify and correct such assessment, in such manner as they shall deem just, at any time during such review, and for three days thereafter; and thereupon said board shall endorse such corrected and completed assessment upon or annex the same to the estimate of the cost of such improvement, made and filed in its office, as provided in section 6, of this chapter, and shall file a duplicate of such estimate and assessment in the office of the city clerk, who shall lay the same before the common council at its next meeting; and thereupon the common council may confirm or correct said assessments, or any of them, or may refer the same back to the board of public works for revision and correction; and the said common council, and the said board of public works shall respectively have the like powers, and perform the like duties, in relation to such assessment, and any subsequent assessment made pursuant to such reference by the common council, as are prescribed and conferred in relation to the first assessment."

"Section 10. Thereupon, as soon as the common council shall have confirmed such assessments of benefits and damages, the said board shall enter into a contract for the doing of the same, as hereinbefore provided. Such contract shall require the contractor to receive certificates upon or against the several lots, parts of lots, or parcels of land, which may be assessed with benefits on account of the same, to apply in payment of the contract price, as now provided by law; provided that in any case where the contract price of the work to the center of the street or alley, done opposite to any lot or parcel of ground, shall exceed the benefits assessed to such lot, the excess shall be paid out of the ward fund of the ward in which such lot, part of lot or parcel of land shall be situated."

"Section 11. The owner of any lot, or tract of land, or tenement, who feels himself aggrieved by such assessment, as confirmed by the common council, as to the amount of benefits thereby adjudged to

accrue to him by reason of any improvements charged against his lot or parcel of land, or the amount of damages, costs and charges, arising to such owner from an alteration of grade, may, within twenty days after such confirmation by the common council, appeal therefrom to the circuit court of Milwaukee county. * * * Such appeal shall not affect the rights of the contractor, or the proceedings in reference to his contract, but the certificate against the lot or parcel of land in question, shall be given as if no appeal had been taken; and in case the appellant shall succeed, the difference between the amount charged in the certificate and the amount of the benefit finally adjudged, shall be paid by the city out of the proper ward fund, to the appellant, but not until he shall have done the work in question, or have paid the certificate issued for doing the same." * * *

"Section 12. The appeal given by the last preceding section, from the assessment of the board of public works, as confirmed by the common council, to the said circuit court, shall be the only remedy for the recovery of any damages, costs and charges arising from any alteration of grade by the said city, or sustained by reason of any proceedings or acts of the said city or its officers, in the matter to which such assessment of damages or benefits relates; and no action at law shall be maintained for such damages or injuries, whether arising from an alteration of grade or otherwise."

Sections 13, 14, 15, 16, 17, 18, 19, 20 and 21 concern minor details of certificates for work done, cleaning, repair, nuisances, etc.

"Section 22. Whenever a petition shall be presented to the common council, signed by a majority of the owners of lots or parcels of land, fronting or abutting on any street, or part of a street, actually residing on such lots, or parcels of land, and approved by a majority of the aldermen of the ward or wards in which such street or part of such street shall be located requesting such or part of such street to be sprinkled, the common council shall order the board of public works to advertise for sealed proposals for sprinkling such street or part of such street. Such advertisement shall be published for at least six days in the official city papers, and shall state the street or part of the street to be sprinkled, and for what length of time. All contracts shall be awarded by said board to the lowest bidder in compliance with the provisions of section ten of chapter five of this act, and shall be expressly subject to the powers given to said board by said chapter."

"Section 23. The board of public works shall assess against the several lots, parts of lots or parcels of land, fronting or abutting on such street, or part of such street, the cost of sprinkling such street, or part of such street in front of such lots, parts of lots, or parcels of land. The cost of sprinkling such street, or part of such street, at its intersection with streets and alleys, and across public grounds, and to the middle of such street, adjacent to public grounds, shall be paid out of the fund of the ward in which such work is done."

"Section 24. After the completion and performance of any contract for sprinkling, entered into by the board of public works for work chargeable to lots or lands fronting on streets or alleys upon which such work has been done, the cost of such work shall in the first place be paid out of the ward fund of the proper ward.

"It shall be the duty of the said board to keep a strict account of

the cost of such work done in front of such lot or parcel of land, and report to the city comptroller on the completion of each such contract, stating and certifying the description of the lots, parts of lots or parcels of land, in front of which, work chargeable thereto under such contract, has been done, and the amount chargeable to each such piece of property, and the said comptroller shall, at the time of making his annual report to the common council of the lots or parcels of land subject to special tax, or assessment, include therein the said lots or parcels of land so reported to him by said board of public works, with the amount chargeable thereto for sprinkling, done under such contracts, during the preceding year; and such amounts shall be levied on the lots or parcels of land, respectively, to which they are so chargeable, in like manner as other special taxes are levied in said city, and when collected the same shall be credited to the ward fund in which such property is situated."

The remaining sections of the chapter contain, among other things, provisions permitting lot owners (who agree to waive irregularities that may occur in the assessment) to apply to the board of public works for permission to pay such assessment in annual installments (extending over a period of from five to ten years) instead of at once, in which case "street improvement bonds" are issued against the lots petitioning, which the contractor binds himself to accept in payment for his work, and which are first liens. These installments are entered upon the annual tax roll instead of the total amount as is otherwise done, but the landowner has still the privilege of paying at any time the total amount still due, with accrued interest. Another provision is as follows:

"No special assessment or certificate thereof or tax sale certificate based thereon shall be held to be invalid for the reason that any contract which has been heretofore or may hereafter be let, contains on the part of the contractor a guarantee or any provision to keep the work done under such contract in good order or repair for a limited number of years, when such guaranty or provision was inserted therein for the purpose of insuring the proper performance of such work in the first instance. All such provisions in contracts for doing public work, inserted for the purpose aforesaid, are hereby legalized, and all such provisions shall be deemed *prima facie* to have been inserted for that purpose, unless the time during which the contractor is required to keep the work in good order or repair shall exceed five years."

Chapter VIII. Sewers.

Sections 1, 2 and 3 provide for sewerage districts, plans and diagrams, and publication of notice and hearing of objections.

"Section 4. The said board may reconsider and modify said plan, and at the expiration of ten days after the time such notice shall have been given to said resident freeholders of the district, shall report such plan to the common council for its approval."

"Section 5. The common council shall take such plan into consideration, and within thirty days after receiving the same, shall

return it to the board approved; or if objected to, with a statement in writing of such objections, or of any alteration or improvements thereof which they may deem desirable."

"Section 6. The said board may, on return of such plan by the common council, modify or change the same in accordance with the suggestions of the common council, or may prepare a different plan, which shall be again submitted to the common council, and may generally modify and change their action in the premises, until a plan shall be mutually agreed upon by the board and common council; provided, that no plan shall take effect until approved by the common council, and no plan thus approved shall be deviated from except by consent of the common council; and provided further, that sewers may be ordered and constructed in any district without the plans of such district being completed in their whole extent and all their details."

Sections 7 and 8 require the board of public works to report annually the sewers necessary, etc., and cover the details of letting the contract.

"Section 9. Such contracts shall require the contractor to receive as payment for so much of the work as has been assessed against the lots opposite to the front of which any sewer shall extend, certificates against such lots respectively; and the residue of such contract shall be paid out of the proceeds of the general sewerage tax, to be levied on the real estate and personal property within the sewerage district, by the common council, on the recommendation of the board of public works."

"Section 10. After any contract for work, under this act, to be paid for in whole or in part by special assessments, shall have been entered into, the board of public works shall make, or cause to be made, an assessment against all lots, parts of lots and parcels of land, fronting or abutting on the work so contracted to be done, on each side of the same for its whole length, and which have not before been so assessed for sewerage purposes, at the rate of eighty cents per lineal foot of the whole frontage of each lot, part of lot or lots, or parcel of land, fronting or abutting on either side of such sewer, except corner lots, which shall be assessed therefor as follows: corner lots not subdivided in ownership and subdivisions of corner lots, constituting the actual corner of corner lots subdivided in ownership, shall be entitled to deduction in making such assessment, of one-third from the aggregate of the street lines of such corner lots, or corner subdivisions thereof, on all the streets in front thereof; such deduction to be made in the assessment of the longest street line of such corner lots, or corner subdivisions thereof, or in case of equal street lines thereof, in the assessment for the second sewer to which they are liable; provided, however, that when the actual cost of any sewer shall be less than one dollar and sixty cents per lineal foot, then, and in that case, the assessment shall be for the actual cost of such sewer per lineal foot, one-half thereof to be chargeable against the property fronting or abutting thereon, on each side thereof. Whenever any lot which, as originally platted, fronts or abuts on any sewer, is subdivided, and the subdivisions thereof are owned by different persons, no subdivision of such lot, not fronting or abutting on such sewer, and not owned by the same person who owns the subdivision fronting or abutting on such sewer, shall be assessed for the cost of such sewer."

Section 11 concerns further details of subdivisions.

"Section 12. The cost of all sewers in street and alley crossings, and of all sewers, in excess of one dollar and sixty cents per lineal foot, chargeable to lots and lands, as provided for in section ten of this chapter—of all catch basins for receiving the water from the gutters, and of the overflow pipes connecting them with the sewers—of all temporary catch basins—and of the repairing and cleaning of sewers—and all expenditures for temporary work necessary to carry out the system of sewerage herein provided, and all costs for constructing sewers, not provided for by special assessment, shall be paid out of the fund of the proper sewerage district; and all cleaning and repairing of sewers and catch basins, and all temporary work necessary to be done as above stated, shall be done by the authority of the board of public works, as may be necessary."

"Section 13. The board of public works shall report to the common council, on or before the 15th day of December in each year, as accurately as may be, the amount of money required for sewerage purposes for the ensuing year, in each district, in addition to the special assessments made; and the common council are hereby authorized to direct the levy and collection of a tax for sewerage purposes in each district, for such amount as may be necessary, not, however, to exceed in any one year the sum of one and one-half mills on the dollar, on all the property, real and personal, subject to taxation within any such sewerage district; which tax, so levied, shall, when collected, be paid into the city treasury, and be placed in the fund of the sewerage district in which the same has been collected; and the city comptroller is hereby directed and required to keep a separate and distinct account with each sewerage district. The tax to be levied under the provisions of this section may be added on the tax roll to the general city tax assessed against such property."

The remaining sections of the chapter concern minor details.

Chapter X.—Water-Works.

Sections 1, 2, 3, 4, 5 and 6 concern the control of the water-works by the board of public works in general matters.

"Section 7. There is hereby created for the said city a separate fund, to be called the water fund. There shall belong to such fund all bonds and proceeds thereof, authorized by law to be issued for the construction of the said water-works, all proceeds of all taxes levied for the construction of the said water-works, all water rates assessed and collected for water proceeding from such water-works,—and all other proceeds, revenue and income of said water-works, and all other moneys and property in any way derived by the said city in aid of the said water-works, or appropriated by the said common council toward the same; and the said fund is hereby exclusively devoted and appropriated to the construction and maintenance of the said water-works,—and to the payment of said water bonds, until the said works shall be wholly completed and the said bonds wholly paid. Said water fund shall be kept in the city treasury in the custody of the city treasurer, and shall be disbursed by him on vouchers drawn for the same in the manner provided in this act; and said city treasurer and the sureties on his official bond shall be liable for the safe keeping and disbursement thereof. It shall be the duty of the treasurer of

said board of water commissioners to submit his account of the water funds in his hands on the first day of January, 1875, or at such time as the water-works shall be surrendered, as provided in section one of this chapter, and to settle and adjust such accounts with the city comptroller, and to pay over any balance remaining in his hands on that day to the city treasurer, to the credit of the water fund."

Sections 8, 9, 10, 11, 12, 13 and 14 provide for rules and regulations, reports, protective ordinances, and making the water rates collectable "in the same manner as other taxes on real estate are collected."

"Section 15. The board of public works for the city of Milwaukee, before laying water pipe along a street, alley, or other line in said city, shall assess against the several lots, parts of lots or parcels of land which may front or abut on the proposed line of water pipe, or which may be contiguous to and used in connection with any lot or parcel of land so fronting and abutting, the amounts which the said several lots, parts of lots or parcels of land may, in the judgment of the said board, be specially benefited by reason of laying such water pipe, not to exceed, however, the amount prescribed in the next section; provided, that no lot, parcel of land or part thereof, shall be subjected to the payment of more than one assessment for water pipe laid in the same street or alley."

"Section 16. A regular lot (not corner) which may front or abut on the line of water pipe, shall be assessed an amount equal to one-half of the cost, as estimated by the said board of public works, of furnishing and laying a regular minor water pipe of approved materials and manufacture, with the required openings for connections with private service water pipe along the front of such lot, such minor pipe to be not less than four nor more than six inches in diameter, as the said board may determine. Every irregular lot, part of lot, or other parcel of land fronting or abutting on such line of water pipe, and likewise any parcel of land, or lot, which shall be contiguous to any parcel of land, or lot, or part of lot so fronting or abutting, and which in the judgment of the said board is or may be most advantageously used in connection therewith, shall be assessed for such water pipe the amount which, in the judgment of said board, shall be as nearly as may be in just proportion to the amount assessed for regular lots as compared with the special benefits derived by each from the laying of the said water pipe."

Sections 17 and 18 concern corner lot rebates, apportionment to subdivided lots, and the levy and collection "as other special assessments are levied and collected in said city."

"Section 19. The said board of public works shall file reports of such assessments with the comptroller, who shall record the same in a book to be kept for that purpose, and give notice thereof to the parties interested, by publishing the same for three successive days in the official papers. Any person feeling himself aggrieved by the report of said board, may, within twenty days after the completion of the publication of notice by the comptroller, appeal from such report to the circuit court of Milwaukee county. Such appeal shall be entered and conducted in like manner, and like security for costs shall be required as provided by law in cases of appeal from the decision of the common council of said city to said court, on the returns of assessments of benefits for street improvements. In the making and signing

of all reports or returns, under this chapter, by the said board of public works to the comptroller or any other officer of said city, the official signatures of the president and secretary of said board shall be sufficient."

"Section 20. The said board of public works shall, from time to time, make reports to the comptroller of all work done, for which assessments shall have been made, as hereinbefore provided, and the comptroller shall file such reports, and enter the same in his book of records of assessments; and of all assessments for work so reported to have been done, the comptroller shall, if possible, make certified returns to the city clerk, in time to have the same included in the tax levy for the current year; and the same shall be entered on the tax roll in a separate column, under the head of 'water pipe assessments;' and the same shall be collected, and the payment thereof shall be enforced by sale, deed, and other proceedings, in like manner as is now provided by law in case of assessments for street improvements. No certificates shall be issued by the comptroller for such assessments, but all such assessments, and the proceeds thereof, when collected, shall belong to the fund for the construction of water-works, and shall be credited to said fund on the books of the comptroller and treasurer of said city."

The remaining sections provide details of administration, etc.

DISCUSSION.

JAMES OWEN, M. Am. Soc. C. E.—The question of special assessments for improvements is one in which the speaker has been deeply interested for many years, and he thinks that this paper is really an important addition to professional literature. The various practices of making assessments for the improvement of property in different parts of this country are extremely incoherent. It is not only that the State of Tennessee differs from the State of Pennsylvania; or that the State of New Jersey differs from the State of New York; but that different contiguous localities widely diverge in their individual ideas and practices of assessment. It must be understood in the first place that this is entirely a legal matter; that the principle of assessment is governed by legal enactments, and these enactments, to a certain extent, represent the sentiment of the State in which they are in force. Professional engineers can see readily that a correct principle, correct in itself, will be right in Pennsylvania, right in Tennessee, right in New York, and right in New Jersey; but the courts decide otherwise, and say that a principle which is right in New Jersey is wrong in Pennsylvania, and that makes the question of assessment so complicated that it is hard to formulate any particular rule and regulation. Mr. Owen.

There is a statement in the fifth paragraph of the paper that calls for criticism. A special assessment is defined as "a compulsory contribution paid once and for all to defray the cost of a specific improvement to property, undertaken in the public interest, and levied by the government in proportion to the special benefits accruing to the property owner." The difference between taxation and assessment is that a private interest is subserved by assessment, as against the public interest by taxation. All can understand that the opening and the paving of a street, *per se*, are primarily for the particular development and benefit of the property for which the street is opened and paved. Incidental to that come the wants and desires of the community to get to that property and the ease of traveling upon the pavements, but first and primary is the interest of the property owner. In opening or paving a road the two ideas of assessment and taxation, in the case of the property owner, are that by taxation the community pays for the privilege of getting to the man's house and by assessment the owner pays for the privilege of letting the public get to him.

The speaker's experience had been obtained in a specific locality. Around him are some eight or ten different communities, cities, towns, townships, boroughs and villages, and in those communities the variety of ideas on the question of assessment is remarkable. The cities, as a rule, assess the cost of street, sewer and paving improvements on the property benefited. Some of the towns do the same

Mr. Owen. thing, and some assess the cost of grading streets on the property, and the paving of streets on the public at large. Others of the towns put in their tax levy so much every year for the grading and paving of streets. Others, again, issue bonds for such work, and provide for payment by general tax levy. There is such a variety of ideas that no general rule can be laid down. The principle evolved is that the land taken should be paid for by the property, and that grading and paving of the streets should be paid for, one-half by the county and one-half by the township.

The author alludes to the fact that the Supreme Court of New Jersey had decided that the principle of assessing by the front foot was illegal. This, of course, while reasonably correct and proper to the ordinary layman's mind, overcame all the practices and usages which had been in vogue for some years in assessing either streets, pavements or sewers. The difficulty was overcome by calculating the assessments on the front foot, then making some minor deviations from that assessment to show that the front foot rule was not abided by, and then declaring in the result that the property had been assessed in accordance with the benefits received and in compliance with the decision of the Court.

With reference to the question of sewers, the State of New Jersey a year or two ago passed a law, which probably exists nowhere else on any statute book, that where trunk sewers are constructed for any municipality, the cost of those trunk sewers should be assessed on the drainage area benefited or physically connected with that trunk sewer. That, of course, made the matter entirely an engineering problem. Last year the speaker had occasion to get up the assessment returns for an expenditure of about $250 000 in a community where there was a trunk sewer outside of its limits, two trunk sewers within its limits, five or six radiating submains, ten or fifteen main laterals, and in addition many small laterals. The calculations to work out that particular assessment were quite interesting. It had first to be assumed, as the author says is proper, that each individual property owner on the main sewer should be assessed for the cost of a lateral. The speaker believed that to be good practice. The excess of cost of the main sewer above the lateral was distributed as one item over the drainage area. Then in the main trunk sewers, the same process was gone through. In addition to that there was the extra expense in putting down the main trunk sewers deep enough for certain specific localities, which all can understand would be necessary. That was attended to. Then, in addition there was the extra expense in certain other localities in putting down certain laterals to accommodate certain other laterals. The total number of specific items for each assessment amounted to about seven, and in addition there were two areas which were not, according to law, in the drainage area. Then came the problem, if these two

sections demanded immediate sewerage, the town was under obligations to give it to them, by providing for connecting the sewers and pumping the sewage into the mains. Therefore in an engineering sense those districts were included in the drainage area. In addition to that the law said that no property not connected with a sewer was liable to assessment. That made another complication, and the whole assessment then had to be divided. In working it out further the question of using front feet or area to develop the amount of money due on each lot was considered, and at that point a decision of the court was injected, in which the Supreme Court of New Jersey had decided that the assessment for sewerage should be made by the commissioners, not on the existing status of the property, but what, in the judgment of the commissioners, would be a judicious development of that property in the future. Mr. Owen.

The decision of the claims between area and frontage were decided on the basis of prospective benefits, which the speaker thinks justifiable. In that community there was suburban property of different characters. There were tracts of 7 or 8 acres, 100-ft. lots, 50-ft. lots, and 25-ft. lots. In accordance with the decision of the court, the question to be solved was: within a reasonable time what will be the probable development of a certain piece of property? That is, would it be subdivided into 25-ft., 50-ft., 100-ft. or 200-ft. lots. The assessment was made on the basis of the probable accommodation per house for that particular sewer on that land. It is unknown what the courts may decide on the matter.

The author alludes to the fact that in Newark, N. J., "of the sewer system, both mains and laterals are a charge upon abutting property, except where a main sewer is laid the property is charged only with the cost that a pipe sewer would have in the same place." That is perfectly correct. In his allusion to the practice in Newark he states that the levy for grading, curbing and paving is made by the frontage method. That is hardly correct under the decision of the court. Take, for instance, the question of renewals of pavement. There is a street in Newark that was originally paved with cobblestones, at that time considered the best practice. Subsequently the cobblestones were discarded and a wood pavement was laid down. That lasted about three years. Then they laid granite blocks. Those three assessments were levied on that property. The wood pavement assessment was strenuously fought in the courts, but the decision was that the property owners must pay for it, and that is the practice in that city in all questions of renewals.

The author states that "As far as the trunk sewers are concerned, their construction is of more general import to the city as a whole than to any individual users, and their cost might well be paid by general taxation." That statement is hardly tenable. Where a city has a

Mr. Owen. number of different drainage areas, the assessment of the trunk sewer should be confined to the principal drainage area. The speaker knew of one assessment made in that way, and the commissioners, for shortness, assessed each lot $10. It was very simple, and it was satisfactory. In one town the cost of sewers is provided for by charging a lump sum for connection and then relieving the property owner from any future assessment, which is very good practice.

This question of assessment is a matter bound up greatly with engineering practice. While the engineer may not be able to lay down any fundamental principles to the commissioners, simply because the commissioners have to be governed entirely by law, the mere existence of the paper under discussion, circulating among the different cities and towns of this country and showing crystallized practice in the matter, will be of great value because every community has been working out its own plan and its own idea according to its own whims and caprices.

The speaker did not think that the question of contract maintenance should be considered as a permanent practice. He considered the plan of making contracts for asphalt and brick pavements for a period of ten years unprofessional. It is not known how long brick pavements will last, nor is it known exactly how to make asphalt pavements; and the community, to insure satisfactory results, makes contracts with a company to put these pavements down and keep them in repair for a term of years. This practice is not in vogue in building bridges. Engineers do not make contracts for keeping bridges up for ten years. Masons do not make contracts to keep buildings up for ten years, and in no other branch of engineering practice is it done. The only reason for it to-day is the ignorance of the contractor on the subject, and, somewhat, the ignorance of the engineer.

This subject is mentioned as it is alluded to in the paper as a part of the question of assessment. The author states that in some cities the question of the ten years' maintenance was included in the cost of assessments. That, the speaker thought, was theoretically wrong, as in the higher development of engineering, the ideal development, the function of the engineer should be just as much to inspect the manufacture of asphalt as it is the function of the engineer constructing a bridge to inspect the manufacture of steel. Mr. North has stated that it is the province of the engineer, by himself, or through others, to see that the powers of Nature are subservient to humanity. This, the speaker did not think was practicable; he was unable to do it, and, in fact, was himself making contracts to-day for ten or fifteen years for asphalt and brick. The manufacture of cement has been revolutionized by the action of engineers in demanding strict adherence to certain conditions, and with a practical knowledge by the engineer of the material in the manufacture of asphalt pavements, similar results will follow.

EDWARD P. NORTH, M. Am. Soc. C. E.—The profession of an engineer is to direct the great forces of Nature for the service of mankind. He can do that himself or through others. There are some things he can do better through others than by himself; making steel bars for bridges is one of them. It can be specified that the bar shall stand an ultimate strain of so much, that it shall stretch so much before breaking, and that it shall bend around its own diameter without nicking. This cannot be done successfully with any asphalt pavement known, not even rock asphalt The speaker could teach any man in one day how to lay good rock asphalt pavement, but is not prepared to say the same regarding ordinary bituminous pavement, as he did not think he could do it successfully. In the Department of Public Works of the City of New York, a great many samples of crude asphalt, bitumen and paving cement, as it is called, and also of the finished products, have been analyzed. Pavements that have failed utterly do not differ so much from those that have been successful, as the successful ones differ among themselves. Analysis is not trustworthy as a guide for the acceptance of a pavement, and the speaker would be rather slow to reject a pavement on the strength of any analysis, if the contractor was willing to back his offer to lay such a pavement with a competent bond for fifteen years' maintenance. Mr. North.

In the City of New York specifications for repaving with asphalt call for a pavement that for fifteen years from the date of its acceptance shall have no depression greater than $\frac{1}{2}$ in. from a straight edge 4 ft. long laid on its surface, and if repairs are not made within forty-eight hours from notice, the Commissioner of Public Works is authorized to make the necessary repairs, taking the cost thereof from the deferred payments due the contractor. Many persons who wish to form asphalt paving companies object strenuously to the lengthy maintenance, but companies with capital seem satisfied.

It is approximately possible to lay a pavement that will last a year and break up at the end of the second, or to lay a pavement that will last five years and commence to powder at the end of the sixth or seventh year, but the speaker had doubts about the possibility of laying a pavement that would last fifteen years. If Mr. Owen's plan of abolishing the guarantee is adopted, the engineer, instead of taking care of all the interests of a city, must not only have a technical knowledge of asphalt; but to make this knowledge valuable to the city he must be in the place where the asphalt is refined, he must be on the mixing floor, and he must be on the street, which is an impossibility. Otherwise, he falls into the hands of the municipal employee, who may be a good man and who, under the Civil Service rules, should be a good man.

It is not necessary that an engineer should run a smelting furnace, an open-hearth plant and a rolling mill, in order to build bridges. He

Mr. North. should make such specifications as will ensure a bridge that will be strong enough for the traffic, which is easily done; and an asphalt pavement that will be maintained in good order for fifteen or any other desired term of years may be specified and obtained if a sufficient and responsible bond is exacted.

Mr. Tillson. G. W. TILLSON, M. Am. Soc. C. E.—The author states that in Brooklyn on streets where street car tracks are laid, one-fourth of the cost of the pavement, or of the improvement, is assessed against the property, one-fourth against the street car company, and one half against the city. This is true; but his assumption that the city thereby pays the same amount it would have had to pay if no car track had been on the street, is erroneous. Under the old prices for asphalt pavement it made no difference in the cost of the street whether a car track were there or not, but as the price for the wearing surface has decreased gradually until it is now generally less than a dollar per square yard on streets having no car tracks, the cost per square yard on streets having car tracks has increased materially. On most of the biddings where the price for the asphalt would be 90 and 95 cents per yard on streets without tracks, on streets having tracks the cost would be from $1.25 to $1.35 per square yard. So that when the cost of the pavement came to be figured up and paid for by the city, notwithstanding the fact that the street car company pays one-fourth of the total cost, the city itself really pays more for its share than it would if the track were not there, and the property owner pays almost as much—his quarter is very nearly as much as the half would be under the old rule. The point is that the cost of a pavement to the city is not decreased by the fact that a street car company occupies a street and pays one-quarter of the cost of the pavement.

The reason of the greater cost per square yard on streets having car tracks is the extra expense of laying the asphalt pavements on such streets and the greater duty required under the five years' maintenance clause. It costs a good deal more to keep the pavement in repair for five years on a street having car tracks than on one without tracks. Nearly all the roadways of Brooklyn streets are 34 ft. wide, which leaves a very small space between the tracks and the curb, and although traffic in each direction keeps on the right-hand side, the consequent concentration of travel in one place causes greater wear.

In relation to guarantee on pavements, the statement of Mr. Owen would be correct if it had been made ten years ago. The speaker did not think there is now any necessity whatever for putting a five or ten-year guarantee clause in contracts for asphalt pavements. When this pavement was first introduced, nobody in this country or anywhere else knew how it would behave, what sort of traffic it would sustain, or how long it would last under the action of the weather. It was an experiment. The people who then advocated asphalt pavement had

faith enough in it to guarantee that it would last five years. This was the only way that their pavement could be introduced, and the insertion of guarantee clauses in contracts is simply a practice that has come down from that time. Mr. Tillson.

CORRESPONDENCE.

KENNETH ALLEN, M. Am. Soc. C. E.—It is difficult to devise a method of special assessment with reference to sewerage which will apply with equity in all cases. In one case a complete system of sewerage is to be paid for; in another, a small lateral, while a third case calls for a disposal plant with outfall. Again, we may have to provide for a system of domestic sewers, combined sewers, or storm-water drains; and, to further complicate the problem, we may assess the entire amount at the outstart, or we may, after floating an issue of bonds, provide for their interest and ultimate redemption, with or without annual charges for maintenance and renewals, by annual assessments or rentals. Mr. Allen.

It is clear, first, that before any particular plan can be outlined, a definite knowledge as to some of the above points is requisite; and, secondly, that there may be as many equitable solutions of the problem as there are conditions precedent.

The author has collated valuable data with regard to current practice, to which the writer ventures to append a few others which have recently come under his notice.

Assuming that the cost of sewerage should be met, at least in part, by special assessment, there are three principal methods which may be used:

1. A special assessment based upon the frontage or area of the property or upon a combination of these;
2. A rental charge;
3. A special assessment based upon the valuation of the property.

First.—An assessment based upon frontage alone is in common use. In Boston, Mass., for instance, the cost up to $4 per lineal foot is charged to abutters; but from any corner estate which has been assessed for a sewer in the other street, 100 ft. is deducted from the total frontage of the estate. In this way the city is recouped by about 60% of the cost of the work, and this is placed to the credit of the sinking fund.

As the cost of sewer work varies so greatly, depending on the depth and size of sewer, character of excavation, drainage, etc., while the benefit received may remain the same, it has been thought more equitable to assess some fixed sum per foot of frontage, which rate

Mr. Allen.

may be determined as the average cost per lineal foot or some fraction thereof. This practice is followed in Philadelphia, Pa., New Haven, Conn., and elsewhere, as shown by the author.

The fact that a narrow but deep lot, or one with no frontage on the sewer, may secure a greater benefit than a broad but shallow lot, has caused other cities to base their sewer assessments entirely on the area benefited, as in New York and Chicago. In Indianapolis, Ind., unplatted property beyond a depth of 200 ft. is exempt, while in Seattle, Wash., the rate decreases in several zones according to their distance from the street.

A combination of frontage and area is generally admitted to be a more equitable basis, and is in use in Newton, Mass., Wilmington, Del., and Buffalo, N. Y. In Newton the city assumes one-fourth of the cost, three-fourths being assessed against estates which may make connection. The rates charged are 50 cents per lineal foot of frontage plus 6 mills per square foot on area to a depth of 180 ft.

In the case of unimproved property this method is not so applicable, although such property may be made exempt from taxation, or partially so, until the advantages of sewerage are available.

A perfectly equitable method of taxation would apportion the assessment according to the benefits received; and the actual use made of the system is in some ways a better indication of this than either frontage or area. Hence:

Secondly.—The rental system has been recently adopted by several towns, as mentioned by the author. Where the separate system is adopted, the use made of the sewers is practically proportional to the water supply; and if the rates for the latter are equitable, the sewer rates on improved property may be based upon them.

The City of Marlboro, Mass., provides in this way for half the cost of its sewers, disposal works, maintenance, renewals, interest and sinking fund, the balance being met by general taxation. The charges are 10 cents per 1 000 galls. metered, with a minimum charge of $4 per annum. A discount of 75% on the above rates is made to manufacturing establishments, and one of 15% to estates with sill-cocks. The minimum rate for unmetered estates is $6. It may be urged that in this way unimproved property does not bear its share of the burden, especially when such property is drained or otherwise enhanced in value; and to meet this objection a system of rentals may be combined with a tax on frontage or area or on both. In Brockton, Mass., 25% of the cost of construction is paid by a tax on abutting property of 15 cents per front foot plus $\frac{3}{10}$ cent per square foot of area within 125 ft. of the street, no ground being assessed twice. When estates abut on two or more streets the assessment is based on the longest side, and the length of the other fronts less 60 ft. on each. Two-thirds of the annual expense, including maintenance, is raised by

rentals amounting to $8.40 per annum for each unmetered water service, or 28 cents per 1 000 galls. for metered service, with discounts of 70% to factories, and 20% to buildings with sill-cocks. Any balance unprovided for is met by general tax levy. Mr. Allen.

Fall River, Mass., may be cited as a further example. Here a commission, consisting of the mayor, city engineer and city solicitor, has recently recommended that the funds required for sewerage be raised as follows: One-ninth of the capital cost by an assessment based on frontage; two-ninths of the capital cost by annual rentals, and the balance by general taxation.

The proposed rates are: 15 cents per front foot, and $\frac{3}{10}$ cent per square foot to a depth of 125 ft. where constructed. Eight dollars plus $\frac{2}{3}$ of the water tax in excess of $20, where water is not metered; 10 cents per 1 000 galls. of sewage where water is metered, with a minimum charge of $8.

It is commonly objected to the charge of rentals for sewerage that it will deter many of the poorer classes from making connection. The same objection is urged against the use of water meters, although a charge proportioned to the use made of either sewerage or water would appear equitable. The course to pursue in either case is to discard, first of all, any idea of profit to the city, and to fix the schedule of rates as low as practicable, to enforce connection with the system, and, when the charge is based upon meters, to provide a minimum rental; and, moreover, to secure a return for benefits accruing to unimproved property, it would appear best, as a rule, to combine a system of rentals with an assessment on the frontage and on the area benefited. The precise proportions assigned to each method will necessarily vary in different places, depending on whether storm-water is admitted and on other considerations.

Thirdly.—Where the removal of storm water is a consideration, the area drained or otherwise benefited should be made to bear its share of the cost. This may be accomplished by the customary assessment of a certain sum per square foot, or else by one based upon the valuation of the property so benefited.

The latter method is employed in Chicopee, Mass., where a tax of 1% on the assessed valuation is levied, increased by the sum of $10 when entrance is made. These charges have been found inadequate to pay for the entire cost of construction.

In Lawrence, Kan., main sewers are paid for by general tax levy, while laterals are paid for by the abutting property, according to the valuation of the lot, without regard to improvements. This somewhat unique method has been stated as giving satisfaction in that city, but from the fact that under it any individual assessment is practically independent of the cost of the sewers, of their use, or of any benefits resulting therefrom, it cannot be considered equitable.

Mr. Allen. An assessment based upon the appreciation in value of the property lying within the drainage area has been proposed, and if the amount of such appreciation could be easily established, this would offer advantages, especially in the case of sewers or drains admitting storm water. These frequently drain large areas where the benefits depend not only on the proximity of the sewer, but on the peculiar physical conditions obtaining on each property. By this method a lot on low ground subject to damage from storm water, the value of which would be enhanced when drained, would pay, relatively, a larger proportion of the cost than an adjacent lot lying higher, and therefore not requiring drainage, although the actual cost of the sewer opposite the latter, due, perhaps, to heavier cutting, might be much greater.

As in the construction of a large outlet sewer, property lying on the outskirts of the drainage area may receive no benefit for years to come, a direct assessment on such property would not be equitable, while, on the other hand, when such property is provided for, it should bear, in addition to the cost of the small lateral on which it abuts, a part of the expense previously incurred in the construction of the larger outfall.

To provide funds for the immediate needs of construction, the city might reasonably advance the amount of such deferred assessments, which sum would be placed to the city's credit from the moneys resulting as a surplus after paying for the construction of the smaller laterals or extensions, the amounts assessed for these being sufficient to provide such surplus. In case the appreciation in the value of the property is so great that a *pro rata* assessment exceeds the cost of the lateral or extension, the surplus could revert to a general drainage fund.

It should be borne in mind that an improvement to any part of a city is an indirect benefit to the city as a whole. For this reason it is quite proper that a certain share in the expense of all public improvement should be assumed by the municipality; and this is fortunate, for it is impossible to devise a scheme of special assessment which shall at once be perfectly equitable and by which, under practical conditions, the amount collectible will be precisely that required. By raising a certain proportion, more or less, by a general tax, this difficulty is removed, and hence provision of this kind is found in most cities using special assessments. From the difficulty in predicting the actual appreciation of values resulting from drainage, it will, nevertheless, be recognized that certain practical difficulties are liable to arise in the application of this method.

Finally, it may be said that, while such work of a general character as long outfalls, interceptors or disposal works may be built by a general tax levy, the cost of domestic sewers may be met best by a combination of frontage and area assessments with a system of rentals;

while combined sewers or storm-water drains may sometimes be most equitably provided for by a charge based upon the resulting appreciation to property, and that, in any case, the city itself should bear a part of the burden. Mr. Allen.

ROBERT E. MCMATH, M. Am. Soc. C. E.—In his position as the officer charged with the preparation and issue of all special tax bills in the City of St. Louis, the writer's official relation to the subject of this paper has been close for a number of years, and as one of a commission to prepare charter amendments he has been compelled to study the subject from another practical standpoint. Mr. McMath.

That the major part of a city's improvements, construction and renewals of street and alley paving and sewer construction must be paid for by special assessments is a necessity imposed upon the new cities of this New World by the conditions of their existence and growth. They need everything all at once. Streets, sewers, water-works, harbor and wharf improvements, bridges, parks, public buildings and the means of public and private lighting. Some of these needs can be met by contract with corporations; others must be provided through some form of taxation, or by the issue of bonds. In St. Louis and other cities the conditions of need have been made more imperative by a new growth into districts, which a few years ago were remotely rural, under the stimulus of modern facilities for transportation and the commendable ambition of citizens to own their homes.

The Constitution of Missouri prevents, and will prevent for years to come, the borrowing of a dollar by St. Louis, or the incurring in any way, in any year, of any obligation beyond the revenues of that year. The city is further denied the power to levy taxes for municipal purposes in excess of $1 on $100 valuation, and is required out of that limited revenue to meet, not only the whole range of expenses usually recognized as municipal, but also those usually classed as county expenses, such as the whole system of courts, penal and charitable institutions, public buildings, etc. It will readily be seen that the city must stagnate, or the principle of special assessments must in theory and practice be expanded to meet the situation.

The statement of the present practice of St. Louis, made by the author, is accurate except as to repairs of paving. A court decision denies to the city the power to require from contractors the maintenance of street paving for any term.

Experience here has been that the city's continuing expenses increase in a more rapid ratio than the revenues. Consequently, as the years pass, a diminishing proportion is available for public improvements, but the demands and necessity for such improvements grow by an increasing ratio.

The situation demands radical measures, and it is proposed to make the entire cost of streets, grading, paving or repaving, cleaning and

Mr. McMath. sprinkling, a charge upon the property, to be paid by special assessment; also, all sewer construction and reconstruction, leaving ordinary repairs alone to be provided for by the city at large.

At the outset must be met the question : Is it fair and just, granting the seeming necessity, to transfer the grading of streets and alleys, their cleaning and the construction of principal sewers, from a charge against the city at large to a local special assessment, when the older parts of the city have had these things done at the expense of the city ?

The last clause of this question brings up the fairness because of the claim that all persons and sections should be treated alike. The answer is, that while the older parts of the city were being improved, the new parts were either outside of the corporate limits, in which case they contributed nothing towards improvements, or since the extension of the city limits they have been shielded from contributing any considerable part to improvements by a very low assessment, viz.: "By the acre as agricultural lands."

When the time comes for local improvements, the old value as agricultural lands can no longer be considered. In many cases it must be deliberately destroyed by grading, and a new value as urban property takes its place. A large part of this new value results directly or indirectly from improvements making the property accessible, available and desirable. The owner who receives what some are pleased to call the "unearned increment" should invest a part of the increase of value in the improvements which enhance the value of his holdings, and thereby establish his right to an earned increment. This is clear as to the ownership of large tracts. How is it with regard to the owners of small lots and homes ?

A practical answer is found in the fact that this class of owners and occupiers are advocates of reasonable improvements and only ask that the terms of payment be made easy. Those who pioneer in the newer parts of a city soon learn that a blockade, due to impassable streets for a part of the year, the want of water in the first place, and of the opportunity to get rid of it after use, are intolerable evils, and to be rid of them is worth money. Such persons are drawn to the newer parts of the city by the attraction of a home in which they may rear their families under better moral and physical conditions than the old and crowded parts afford. Their investment in ground is usually small, and improvements should be considered as investments, not expenses. They, if purchasing with discretion, share in the increase of value which comes indirectly from the investments of others as well as themselves in the vicinage. The fairness and justice of the proposition is sufficiently vindicated by these considerations. But it may be asked, why should the lot owner who has no horse or vehicle pay for the making of a street to be used by others. Because those others largely use the street to serve him and his neighbors. The chief use of ordi-

nary back streets is by the grocer, butcher, milkman, coal dealer and the like. The city at large has no interest in the matter whatever. If the street be a thoroughfare or a pleasure drive, the use of the street gives added value to the adjoining lands for business or residence purposes. Mr. McMath.

Having established the affirmative as to the question of fairness and justice, the converse may be stated, namely: "It is neither fair nor just that the taxes paid by citizens in general should be used to pay the cost of enhancing the value of private holdings." This is so nearly self-evident that the writer contents himself with the mere statement.

Under the constitution of Missouri, "For city and town purposes the annual rate on property in cities or towns having 30 000 inhabitants or more shall not in the aggregate exceed 100 cents the hundred dollars valuation." This limitation is deemed to bar the city from making assessments in her own favor and collecting them herself in advance of the execution of work. The only recognized foundation for the exercise of special taxing power here is, that an actual benefit has been secured the property which is in actual existence and ready for use at the time when payment is called for. To avoid even the appearance that the city is a beneficiary, and that the special tax is an avoidance of the constitutional limit, the collections are made by the contractors. The city undertakes, as intermediate agent, to oversee the work for the tax-payers and to deliver to the contractor in payment for work done tax bills lawfully issued, but by charter is not "liable in any manner whatever for or on account of any work done." Tax bills issued under these conditions have been esteemed gilt-edged collateral or negotiable paper. Contracts have been let at rates which show slight variation from prices charged when the city pays cash. The system of special taxation is therefore thoroughly established.

The manner of distributing assessments has been, that abutting or adjoining property bears the entire cost of street improvements if the amount to be assessed does not exceed 25% of the assessed valuation of the property, including improvements. In case of such excess the city, in theory, pays the excess, but in practice the improvement is deferred until assessed values rise or the property owners voluntarily contribute the excess.

In the writer's opinion it is wrong to put an added burden upon the owner who improves. It is now under consideration to change the manner of assessment upon the theory that a street improvement directly benefits the abutting or adjoining property, and that the direct benefit is most appropriately estimated according to frontage on the improvement. At the same time benefit results to all the property in the vicinity which is most equitably estimated and distributed in proportion to the area of the lots which lie nearer to the street improved than to any others, hence the boundary of the taxed district is fixed midway, approximately, through the blocks. The proportion under

Mr. McMath. consideration is 40% as frontage and 60% as area tax. Alley improvements are to be assessed in proportion to the area of all lots afforded access by the alley.

Sewer assessments have been made according to the area of the lots, and no change is suggested. The use of sewers is, and under this system should be, without additional charge.

The people have become accustomed to paying a sprinkling tax and do so willingly. The benefit is the abatement of the dust nuisance. If the cleaning of improved streets be added, the compensating benefit would be abatement of mud and dirt, cleaning being a logical sequence to sprinkling and complementary thereto.

Mr. Ogden. HENRY N. OGDEN, Jun. Am. Soc. C. E.—The main thought underlying this paper and the aim of every earnest city engineer or city council, is undoubtedly as stated, to make the real benefit to the person assessed the measure of his liability to be taxed, and to provide that the compulsory contribution made by the property owner is or should be only to an amount proportional to the special benefit accruing to the property.

Quite as axiomatic as this desideratum is the corollary that no plan ever devised to establish the relation between the assessment and the property can be put into operation without causing irritation and objection and in many cases working apparently great injustice.

In the consideration of assessments for sewer construction, no mention is made in the paper of the value of the property as an element in determining the benefit accruing—an omission which it seems worth while to note. A year ago, the subject was brought especially to the attention of the writer, then engineer in charge of the construction of sewers in a small city in New York State, by a violent newspaper controversy over the legality of the assessment, made in accordance with the provisions of the city charter.

The conditions were those often found in small cities, viz., one street on which the business houses are located, with frontages varying from 15 to 33 ft. and containing the buildings most in need of sewers; near this street on both sides the residences of the better class, also needing and generally desiring sewers, their frontages averaging about 66 ft.; on the outskirts the poorer houses, in most cases with a small garden on the side or back, their frontages sometimes reaching 150 ft.

The sewers were so designed that the laterals, in order to discharge into the main intercepting sewer, after serving the business and residential part of the town, had also to pass by these poorer places, which, having little or no need of the sewers, in comparison with the others, were yet assessed at the same uniform rate per front foot. The claim made by them was that the tax levied was entirely out of proportion to the benefit received, and that, as there was no increase in

the value of their property due to the sewer, they should pay only a very small part or even nothing at all, unless they made actual use of the system. The claim was not allowed, but from the facts that there was little chance of any change in the value or of better buildings on the property, and that with a public water supply there was little danger to be apprehended from their use of cess-pools, especially in the sparsely settled locality, it seemed to the writer that there was some reason for their claim. Mr. Ogden.

Basing the figures on those which obtained in the city, the following table was made to show the difference in the assessments possible under different methods of levying, and to gain at the same time an idea of the relation of the assessment to the value of the property. The total valuation of the city was taken at $12 000 000, with interest at 6%, and the cost of the system at $100 000.

I.—Direct assessment is assumed at $66 666 equal to $1 per front foot; the general tax is assumed to pay the balance, or $33 333; the general tax at 6% gives, on $12 000 000, an annual tax rate of $.00017. Four classes of property are assumed: A, value $50 000; B, value $20 000; C, $5 000; and D, $1 000; all on 50-ft. lots.

The first horizontal line gives the amount of the direct assessment, and the second, the annual tax for sewers, capitalized at 6 per cent.

	A.	B.	C.	D.
50 x $1	$50	$50	$50	$50
Annual tax, capitalized	142	57	14	3
	$192	$107	$64	$53

II.—The direct assessment is here put at $33 333—equal to 50 cents a foot. The same amount is divided among the property benefited in proportion to its value, assumed at $6 000 000 or one-half the total, being a rate of $.0054 on the dollar.

The remainder, or $33 333, is assumed on the general tax, or an annual tax of $.00017 on the dollar.

	A.	B.	C.	D.
50 x 50 cents	$25	$25	$25	$25
.0054 x value	278	112	28	6
Annual tax, capitalized	139	57	14	3
	$442	$194	$67	$34

III.—The direct assessment is here put at $33 333—equal to 50 cents a foot. The same amount is assumed to be divided equally in proportion to the valuation, here assumed at the total city valuation, or $12 000 000. The general tax is assumed to cover the balance, or $33 333.

	A.	B.	C.	D.
50 x 50 cents	$25	$25	$25	$25
.0028 x value	139	56	14	3
Tax capitalized	139	56	14	3
	$303	$137	$53	$31

Mr. Ogden. Under Section 19 of the laws of Special Sewer Assessment given, the author says that the only safe and practicable course, and the one which will do equal justice to all parties, is to consider what will be the influence of the proposed improvement on the market value of the property; what the property is now fairly worth in the market, and what its value will be when the improvement is made. The table given with the conditions assumed, shows that in "I" the $5 000 residence pays $64, and the $1 000 hut $53, although the value of the latter property, if increased at all, is certainly not improved as compared with the other, in the ratio of the two assessments.

In "II," the effect of assessing half of the direct assessment according to the value of the property is seen, with the large increment in the assessment made on the better property. Whereas the $50 000 property, which might be a hotel, apartment house or office building, paid in the first case but four times as much as the poorest property, here it pays thirteen times, a proportion, which, in view either of the benefit to the property or of the use of the sewer, would seem to be more equitable.

"III" is given to show that as the valuation of the property approaches the total valuation, the individual liability is reduced; a result also obtainable by placing a larger proportion of the cost in the general tax list.

By establishing a scale or ratio of the benefits secured to the different classes of property, the fraction of the direct assessment collected on valuation can be so varied as to make the amounts almost exactly correspond to the predetermined benefits, and the matter in dispute would be changed from the amount of the assessment to the amount of the benefit, a more proper basis for discussion.

It is understood that there is always a possibility of the owner of the $1 000 lot putting on it a $50 000 building, and so making the uniform frontage assessment equitable, but in the class of cities under discussion, this is a very remote possibility. It is also understood that a fair comparison between vacant lots and improved property would be difficult, but a comparison of the values of the land would avoid this uncertainty, and a charge for rental would further equalize the payments for the benefits received.

It is finally submitted that the benefit to property from a sewer connection bears generally an indirect ratio to the value of the property, not included in an assessment by frontage or area, and that therefore the value of the property should properly form an element in determining the direct assessment.

Mr. Williams. GARDNER S. WILLIAMS, Assoc. M. Am. Soc. C. E.—The statements of the author regarding Detroit are to be somewhat modified on account of a law enacted by the last legislature and now just gone into effect relative to the laying of water pipes. This law provides that the cost

of laying a water pipe, 6 ins. in diameter or less, shall be assessed upon the property abutting upon the street through which it is laid, on a basis of frontage, the total cost, including street crossings, to be so assessed equally per foot of front, except that in case of a main being laid on two sides of a lot, the shorter side alone determines the assessment of the lot. For pipe larger than 6 ins. in diameter the estimated cost of a 6-in. pipe only is to be assessed, the remainder of the cost being borne by the water rate payers. Mr. Williams.

Mr. H. E. Terry, City Engineer of Saginaw, Mich., who has devised a method of apportioning special assessments, has, at the writer's request, supplied him with the following description thereof, which it is hoped will not be out of place in this connection, and will be of interest to those having to deal with such matters.

The charter of Saginaw requires that such assessments be made according to the benefits received from the special improvement, regardless of the value of the property benefited, and the practice has been for some years past to fix assessing districts, including generally the half of each block adjoining and on each side of the street in which the improvement is made. Now, it is evident that, based upon benefits received, land contiguous to the street improved should be assessed more than similar land situated further back from the street; in other words, the assessment must be graded, diminishing from the front toward the back of the district. After some investigation it was found that the following formula will give the proportionate amount of the frontage assessment of any fixed depth to be assessed any depth; that is, for each dollar of any frontage of assessed depth as a unit, the formula will give the fraction or multiple thereof for any depth.

The formula is: $y = \frac{2^x - 1}{2^{x-1}}$ or $y = 2 - 2^{1-x}$, in which $y =$ the proportionate assessment and $x =$ the depth from the front in terms of the unit depth. To illustrate, solve for y, assuming values of x, giving—

for $x = 0$, $y = 0$	for $x = 3$, $y = 1\frac{3}{4}$
$x = 1$, $y = 1$	$x = 4$, $y = 1\frac{7}{8}$
$x = 2$, $y = 1\frac{1}{2}$	etc.,

which by successive subtractions gives for each dollar assessed on the front unit of depth, the amount of 50 cents for the second unit of depth, 25 cents for the third, and so on in a decreasing geometrical ratio. Similarly for fractional values of x. For each dollar assessed on the front unit depth, the proportionate assessment for any fractional part is obtained.

The following will illustrate the gradation of assessments for successive equal widths from the front to the back of the district, each width being a given fractional part of the unit depth.

Mr. Williams.

	Each parcel one-half of unit depth.	Each parcel one-third of unit depth.	Each parcel one-fourth of unit depth.	
1st unit depth.	0.5858 ..... 0.4142 — 1.0000	0.4126 0.3275 ..... 0.2599 — 1.0000	0.3182 0.2676 0.2250 0.1892 — 1.0000	1st unit depth.
2d unit depth.	0.2929 ..... 0.2071 — 0.5000	0.2063 0.1637 ..... 0.1300 — 0.5000	0.1591 0.1338 0.1125 0.0946 — 0.5000	2d unit depth.
3d unit depth.	0.1465 ..... 0.1035 — 0.2500 etc.	0.1031 0.0819 ..... 0.0650 — 0.2500 etc.	0.0795 0.0669 0.0563 0.0473 — 0.2500 etc.	3d unit depth.

The present practice is to call the unit depth 50 ft., and a table has been arranged for the proportionate value of each foot, and the totals between any limits in feet wherever located within probable range of the district, so that at a glance the proportionate amount can be found which, multiplied by the frontage in feet, gives the proportionate assessment of the given parcel. Then—

$$\frac{\text{Total assessment}}{\text{Total proportionate assessment}} \times \left\{ \begin{matrix} \text{Proportionate assessment for} \\ \text{any parcel} \end{matrix} \right\} = \text{Assessment for any parcel.}$$

Mr. Le Conte.

L. J. Le Conte, M. Am. Soc. C. E.—The author's subject is one which will always invite interesting discussion. He states both extremes in practice, and then attempts to strike the happy medium. His conclusions seem to be well studied, and will certainly interest property owners west of the Rockies.

The general practice in California is to make the abutting property pay for the entire cost of street improvements, and in most cases keep up repairs also. Of recent years a few towns have been keeping up repairs, so called. It requires very little study to arrive at the conclusion that the public is fully as much benefited by street improvements as the abutting property. The practice in a large number of eastern cities, and even in England, is to divide the expenses equally between the city general fund and the abutting property, and subsequent repairs are always kept up by the city. Western cities are rapidly drifting in the same direction, and, as a result, it may be noticed that a markedly closer relation between the city governments and the citizens is growing up. Public improvements are commendably encouraged thereby, and yet the special tax is heavy enough to prevent a tendency towards extravagance.

On main avenues of approach to bridges or depots the traffic is abnormally heavy and continuous, and the consequent noise and dust

is an actual detriment more than a benefit to the abutting property for many purposes, and the repair expenses become such an unreasonable burden that the city should, in all equity, pay a still higher proportion of the same. Mr. Le Conte.

West of the Rockies most cities decline to accept streets after improvement, no matter how well done, chiefly to avoid the repair expenses, but also to avoid annoying law suits. As a result, repairs are neglected, and the pavements soon get into a bad condition. The City of Oakland has 102 miles of improved streets, only 7 miles of which are accepted. One would naturally infer that the trouble lies with the State laws.

Section 25 of the Street Law provides "that the City Council may in its discretion repair and water streets that may have been graded, curbed and planked, paved or macadamized."

"*Section 20.*—That whenever any street or portion of a street has been or shall hereafter be fully constructed to the satisfaction of the Superintendent of Streets and of the City Council, and is in good condition throughout, and a sewer, gas pipe and water pipes are laid therein, under such regulations as the City Council shall adopt, the same shall be accepted by the City Council by ordinance, and thereafter shall be kept in repair and improved by the said municipality, the expense thereof, together with the assessment for street work done in front of city property, to be paid out of a fund to be provided by said council for that purpose."

To an ordinary layman this language seems to be mandatory, and casts a plain duty upon the city council.

Unfortunately the irrepressible "rat-hole" is found in the prerequisite of the streets being in good condition throughout, and is under the discretionary judgment of the council. Hence they almost universally decline to accept any street work, no matter how well done.

Regulations should be adopted fixing definitely a standard condition which each class of work shall fulfil before it shall be entitled to acceptance by the council, and all subsequent repairs and improvement should be done at municipal expense.

The great stumbling block to an equitable adjustment of the burden seems to be due to a lack of proper classification of streets into residence streets, business streets and main thoroughfares, the whole character of the work and the requirements in each case being entirely different. The proportion of the cost of improvement to be paid by the city should be dependent upon this classification (say) residence streets = 30%, business streets = 50%, and main thoroughfares 60% or more, and repairs should be kept up at public expense. It will rarely happen that the whole character of the traffic on a street would change enough to require a reclassification.

Elastic clauses in charters, although necessary, are too apt to be abused, and for this reason should be very limited. The most fruit-

Mr. Le Conte. ful source of complaint comes from assessments based on the district plan, the limits in any case being largely dependent upon the location of property held by political friends.

In regard to repairs, the recent requirement of 10 years' or more maintenance by the contractor has been passed upon twice by the State Supreme Court—once on each side of the case—and hence nothing is settled yet. If this clause, as it is claimed, simply insures excellence in materials furnished and faithful workmanship, it certainly should prevail. Experience is the best judge to settle the matter.

In regard to municipal works in general, everything seems to be pointing strongly towards municipal ownership, and a marked degree of paternalism seems to be a growing fact, developed spontaneously from sheer public necessity.

Mr. Van Ornum J. L. VAN ORNUM, Assoc. M. Am. Soc. C. E.—The author wishes to express his appreciation of the discussion of each of the gentlemen who have contributed. It is only by gleaning the results of the widely diversified individual experience and study that an estimate of the abstruse subject of special assessments, which will be at all adequate, can be secured. Materially aiding in enlarging the view of this subject are the discussions of Mr. Owen, showing especially the complexity of the question and the need of particular attention to the circumstances attending each case; the contribution of Mr. Allen concerning methods in vogue in many Massachusetts cities; the consideration of western conditions and practice by Mr. Le Conte, and the discussion of the situation obliging St. Louis to make an extreme application of special assessments, by Mr. McMath. No doubt many more local peculiarities, interesting details and valuable additions to our knowledge of the subject, would result from extending the range of investigation. The new features brought out by all the contributors indicate the broadness of the field.

In addition to the incisive and illustrative features of the discussions, some issues are raised with the author which he feels constrained to consider.

Mr. Owen would omit from the definition of a special assessment the indication of its public purpose, making it solely a matter of individual concern to the ones assessed. Undoubtedly this view is correct, in so far as its governing quality is concerned; but if this is all, how can the course of many cities be justified which themselves pay for assessable improvements, or of the great number of cities which pay a portion, assessing only the remainder? Further, under our theory of government, the city could not even take upon itself the control of the improvement and the levying of the assessment if it were not, theoretically at least, "undertaken in the public interest."

The author ventures the suggestion that his statements concerning assessments for paving on Brooklyn streets carrying street railways

are in no way opposed to the facts given by Mr. Tillson, and is glad of his enlargement of the argument in the case. Mr. Van Ornum

While interested in Mr. Ogden's discussion the author cannot agree that special assessments should be based upon property values in whole or in part. The author yields to no one in desire to secure exemption from oppression for those in moderate financial circumstances; this was one of the ideas kept constantly in mind during his writing. Yet he believes that the force of Mr. Ogden's argument will be minimized on further reflection. Some of the paragraphs of Mr. McMath's discussion, as well as particular statements and the general tenor of the paper, all indicate reasons for considering fair what, at first sight, might be called unfair. Again, were the criticism to hold, it would adopt the theory of one State to the condemnation of that of nearly all the rest. The greatest objection to the proposed plan is still more fundamental; that, under it, a special assessment would no longer be a special assessment, because property value would become the basis instead of property benefit. If Mr. Pennyman chooses to erect along his front, of equal extent to the frontage of Mr. Crœsus, a fence of exactly the same kind as that of the latter, no one will claim that he should not pay as much for it. If he lays exactly the same kind of sidewalk, he should again pay an equal amount, though frequently the city has a voice in the matter. Exactly the same theory holds when the consideration extends to a pavement, sewer or water pipe, though here the citizen usually loses his option. The actual money value of the benefit to the property concerned is at least equal to the special assessment levied.

Besides, the fact that the mathematics in Mr. Terry's scheme seems to the author considerably involved, there is the danger that whatever might be so gained in intrinsic justness would be more than lost in complicating the system to the understanding of the taxpayer. A thorough simplicity of procedure, so marked that its principles of application can be readily comprehended by even the uneducated, seems a fundamental necessity, in matters of taxation, in avoiding misunderstanding and objection on the part of those assessed.

Mr. McMath's vigorous statement of the undesirability of enhancing the value of private holdings from the proceeds of general taxation seems almost axiomatic; and yet it must be applied in practice with caution. Many public functions would fail if this idea were rigidly followed. Public parks, for instance, cannot be inaugurated without greatly enhancing the value of private property in the vicinity; and yet we cannot, for this reason, condemn the purchase of city parks. Likewise, the author believes that the truest justice will follow the payment of a certain portion of the cost of assessable works from the general fund, because in that case the city will simply be assuming its

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just share, and private property will not be forced to pay for that portion of the improvement which is a public benefit.

At the same time that there is an inclination among eastern communities (where the city has frequently borne a large share of the expense) toward assessing upon private property more of the cost of public improvements, it is gratifying to know that in portions of the West (where an undue proportion is often assessed) the city is gradually assuming a larger share. There is the tendency to modify each extreme of practice. Accompanying such a movement there is always the difficult question of properly adjusting the charge between the municipality and the property benefited. Apart from the question of local conditions, even in one of the simplest of the assessable works, that of original pavements, the problem is very complicated; though the suggested classification of streets would seem to offer material assistance in its consideration. When we pass over all the others and come to the question of placing the charge for trunk sewers, the study is an involved one indeed, as is shown by the various views of those discussing this special question as well as by the consideration it demanded in the paper.

But really any particular situation can never be judged entirely apart from local conditions. The latter are always a factor and frequently a very important one. In each case the expert opinion will be the wiser in proportion to the range of general data upon which it can draw; but the finished conception will lack much of merit unless judiciously moulded to meet local needs.